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Chemical investi.

" Chemical Investigation on Indian Tea "

Series No. 2

Part. II.

Chemical investigations on Indian Tea.

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INDIAN TEA

I. Introduction

Data on the chemical composition of South Indian Black Tea were presented in our earlier publication (Scientific Publication Series No. 2, Tea Board). This report contains data on North Indian Black Tea, Green Tea and Stalky Tea. Consolidated summary data on the composition of Indian Black Tea have been presented and suggestion made with regard to suitable specifications for Indian Black Tea. Indications on the variation in the composition of Tea due to grade and season of manufacture are made and further systematic work in this direction seems to be necessary.

II. Literature Review

Since the publication of the previous report, data collected on chemical composition of Black Tea at the Central Food Laboratory, Calcutta, where work along similar lines was in progress simultaneously, have been published (Sen Gupta, P. N., Roy, A. R., Mathew, T. V., Mallik, A. K. and Sundararajan, A. R., *Jour. & Proc. Institute of Chemists (India)*, 1958, **30,** 142).

III. Materials and Methods

(1) Black Tea

Black Tea samples were collected from 32 Estates located in regions namely (1) Assam, (2) Cachar, (3) Dooars, (4) Terai, (5) Darjeeling, (Appendix I). Samples were obtained from Tea manufactured during April-May, August, and November-December 1956-57. Samples drawn from the following grades (1) Large Pekoe, (2) Small Pekoe, (3) Broken Orange Pekoe, (4) Fannings, (5) Dust I, (6) Dust II, and (7) Broken Grades were obtained. Along with samples, data on the temperature, rainfall as well as the type of manufacture were also received from the Estates (Appendices I & II).

(2) Green Tea

Forty-eight samples of Green Tea were received from Darjeeling, Dooars, Tripura and Jalpaiguri. Samples were drawn from the grades Hyson, Yellow Hyson, Soumee, Dust, Twanky, gunpowder, picked and unpicked bulk grades.

(3) Stalky Tea

Under the name of Stalky Tea, 64 samples were received from Assam, Dooars and Dehra Dun either through the Estates or through various brokers at Calcutta. The samples were received under designations such as red leaf, black stick, green tea stick, green yellow leaf, etc.

Standard methods of analyses were followed, details of which were given in Appendix III of the Scientific Publication Series No. 2. Data were collected for moisture, total ash, water-soluble ash, acid-insoluble ash, alkalinity of ash, total nitrogen, petroleum ether extract, caffeine, tannins, sugars and water extract. The values are expressed on dry weight basis. The results of Black Tea samples are given in Table I (a)-I (g), of Green Tea in Table VII and of Stalky Tea in Table VIII. Maximum, minimum and average values of different grades are given in Table II. A summary of seasonal and grade variations in the composition of Black Tea is given in Tables III and IV. A consolidated summary of data on the chemical composition of Black Tea from North and South India are given in Table V; spread of values is given in Table VI. Seasonal variations in insoluble ash, alkalinity of ash, total solids, crude fibre, caffeine and tannins in different grades of Tea are shown in Figures VII-XII and the spread of values in Figures I to VI.

IV. Results and Discussion

(1) Black Tea

(1) *Moisture :*—A wide variation in moisture from 4 to 10·2% was observed in the samples examined. Nearly 75 per cent of the samples gave values between 4 and 8%. (Most of the samples were received in aluminium sample containers). It is likely that the keeping quality of processed Tea is affected by moisture content and as such it is desirable to exercise control over moisture in Tea. It has been reported that the enzymes are still active after firing (Tocklai Experimental Station, Annual Report 1954,47) and it will be interesting to study the effect of moisture on the activity of the enzymes and thereby on the quality of Tea during storage.

(2) *Total ash :*—The ash content falls within the range 5 to 8%.

(3) *Water soluble ash :*—Only 6·8 per cent of the samples gave values below 50%. The overall average for the North Indian Black Tea was 60·2% as compared to the corresponding figure 57·72% for South Indian Black Tea.

Nearly 92·5 per cent of the samples gave values above 50% for water-soluble ash (Fig. IV). The present limit of 40% thus seems to be rather low and a limit of not less than 50% seems to be reasonable since the overall average for both North and South Indian Tea was 58·68% (Our observations have been further supported by the results obtained by Sen Gupta *et al. J. & Proc. Inst. of Chemists*, 1958, **30**, 142). Except small pekoe and broken grades, the soluble ash was lower than the overall average in the months of April and December (Fig. VII).

(4) *Alkalinity of Soluble Ash :*—The alkalinity values of 7·5 per cent. of samples were found to be above 2% as K_2O, the present limit fixed by law (Fig. I).

The Broken Tea samples showed higher values (1·85) as compared to the overall average of 1·65%. Except Broken Tea, all other grades gave low figures for alkalinity in the month of April (Fig. XI).

(5) *Acid insoluble ash :*—The overall average for North Indian samples was 0·41% as compared to 0·42% for South Indian Tea. In general it was observed that the North Indian samples were found to be less contaminated with extraneous silica, probably indicating greater care taken in processing of Tea in the factories. 93·5 per cent. of the samples gave values below 1%.

There is a strong case for reducing the existing limit of 1% for acid insoluble ash to a limit near 0·6%. It is advisable to point out that the processor should improve the processing conditions in the factory so that the incidental incorporation of extraneous silica is avoided.

(6) *Water Extract :*—Almost all the samples gave water extract not less than 35% (Fig. II). 61 per cent. of the North Indian samples gave values between 40 and 44% as compared to 44·5 per cent. of samples from South India. Water extract varied in the range, 35 to 47·5%.

In the case of large pekoe, small pekoe, B. O. P. and broken grades, the average value of water extract was maximum during April (40·54 to 43·28%) (Fig. IX).

(7) *Crude Fibre :*—Only 5·2 per cent. of the samples gave higher values (over 15%) for crude fibre. A majority of the samples (89·9%) gave values between 10 and 14%. (Fig. III). The fibre values were high during December and low during April (Fig. X). The broken grade samples gave an average value of 14·11% as compared to the overall average of 11·83%.

(8) *Caffeine :*—The overall average was 3·8%. The values were higher in April and low in December samples (Fig. VIII). It was observed that the North Indian Tea showed higher values for caffeine (3·8%) as compared to 3·3% in the case of South Indian Tea. 26·3 per cent. and 17 per cent. of North Indian samples gave values between 4 to 4·4% and 4·5% and above respectively. No sample gave value less than 2·3%, the range being 2·5 to 5·5%. Spread of values for North Indian samples is shown in Fig. V.

No limit has been prescribed for this constituent in the Prevention of Food Adulteration Act and since caffeine is one of the specific and important constituent in Tea, it is desirable to specify a limit of not less than 2·5% in Tea.

(9) *Tannins :*—The overall average was 12·6% and the values were high in April as in the case of caffeine (Fig. XII). Only 1·1 per cent. of the samples analysed gave values below 9·0% (Fig. VI). This is an equally important constituent like caffeine and a limit of not less than 9·0% should be specified for tannins in Tea.

So far attempts have been made to incorporate only minimum standards in the specification for Tea and no attempt has been made to include terms which will have direct bearing on quality. At the present time, we do not have adequate interpretation of the terminology used by the Tea Taster and therefore no provision for organoleptic examination of Tea has been made in the specifications. This naturally gives scope for disregarding quality aspects and for merely conforming to the minimum standards under which even some Stalky Tea could easily pass.

(2) Green Tea

Except in the case of tannin content which is higher in green Tea (17·45%) as compared to Black Tea (12·92%), the limits for other constituent are nearly the same as for Black Tea.

(3) Stalky Tea

Nearly 9·4 per cent. of the Stalky Tea samples gave values below 35% for water extract. 26·6 per cent. of the samples gave values below 2·5% for caffeine and 23 per cent. gave values below 8% for tannins. 51·6 per cent. of the samples gave values above 15% for crude fibre. It is thus seen that many samples of Stalky Tea having crude fibre within the limit of 15% can meet the present specification of Tea. It will be a practical problem to exclude them as non-Tea unless special provision is made to exclude them from sale as Tea.

V. Summary

(1) The analytical data on the chemical composition of 392 samples of Black Tea, 58 samples of Green Tea and 64 of Stalky Tea from North India are presented.

(2) Seasonal and grade variations in chemical composition of Tea have been described.

(3) Suitable specifications for Indian Tea have been suggested.

(4) Need for correlating data on chemical composition with cup test reports and quality of Tea has been emphasized.

TABLE I (a)—*Chemical Composition of Black Tea—Large Pekoe*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CACHAR																		
174*		6·82	6·37	55·58	44·42	39·71	1·87	0·35	6·38	1·63	33·74	3·41	1·48	11·49	11·95	2·52	4·76	38·75
25	C	6·24	5·23	47·59	52·41	31·85	1·50	0·25	4·45	1·98	21·13	3·70	0·37	9·90	10·60	1·76	3·20	39·99
DARJEELING																		
10	C	5·78	5·86	56·33	43·66	26·76	1·26	0·68	5·15	2·08	25·21	3·87	0·91	10·94	10·25	1·06	1·33	42·87
	Average ..		5·82	53·17	46·83	32·78	1·54	0·43	5·33	1·90	26·69	3·66	1·25	10·77	10·96	1·78	3·10	40·54

TABLE I (a)—*Chemical Composition of Black Tea—Large Pekoe—(contd.)*

Month of manufacture : August, 1956—1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
232*		6·41	4·53	57·56	42·44	35·11	1·65	0·19	5·37	2·22	24·13	5·22	0·56	9·57	16·41	2·00	2·50	42·44
CACHAR																		
153	C	9·47	5·90	64·18	35·82	33·14	1·56	0·14	4·23	1·61	20·44	3·30	2·28	13·41	11·57	2·21	3·31	36·18
359*		9·01	5·84	60·59	39·41	37·91	1·81	0·09	4·17	1·47	20·63	3·02	1·66	16·54	12·23	2·20	2·75	38·18
DOOARS																		
171		8·91	6·74	61·31	38·69	46·66	2·20	0·37	4·44	1·87	26·24	4·33	1·40	13·21	11·90	1·78	3·43	40·49
175		8·93	6·62	64·75	35·25	45·58	2·15	0·21	4·59	1·93	28·02	3·72	1·14	14·65	10·97	1·85	3·57	39·96
DARJEELING																		
104	C	8·08	6·13	61·99	38·01	37·53	1·76	0·22	4·60	1·65	22·49	3·57	0·91	11·29	12·13	0·68	11·36	39·22
99	C	7·02	6·24	58·02	41·98	34·10	1·60	0·36	4·67	1·74	23·13	3·36	0·93	12·47	10·72	0·67	11·35	40·50
	Average ..		6·00	61·20	38·80	38·58	1·83	0·23	4·58	1·78	23·58	3·71	1·27	13·02	12·28	1·48	2·61	39·58

TABLE I (a)—*Chemical Compositon of Black Tea—Large Pekoe—(Concluded.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solid %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
489*		5·82	6·00	62·40	37·60	41·12	1·93	0·23	4·57	1·70	22·21	3·87	1·51	11·52	12·67	1·59	1·86	41·30
573*		4·53	8·62	64·90	35·10	43·99	2·06	0·36	4·38	1·55	21·35	3·34	0·98	12·35	11·85	1·63	1·97	38·97
CACHAR																		
534*		8·50	6·02	65·62	44·38	31·52	1·67	0·09	4·10	2·03	19·91	3·17	1·40	14·22	8·25	2·90	3·42	33·82
624*		7·07	5·96	58·56	41·44	38·18	1·80	0·23	4·38	1·66	22·31	2·87	0·87	12·95	11·53	2·07	2·81	40·38
DARJEELING																		
217	C	6·90	5·83	61·67	38·23	37·60	1·77	0·08	4·10	1·59	20·13	3·05	1·03	15·49	13·50	1·61	3·76	39·88
192	C	7·42	5·80	51·19	48·81	33·49	1·58	0·38	4·11	1·69	20·81	2·73	1·64	15·93	10·52	4·68	3·79	38·87
Average ..			5·92	58·57	41·43	37·87	1·78	0·21	4·23	6·77	20·72	3·22	1·33	13·96	10·84	2·22	3·04	38·87
Average of all Seasons ..			5·89	57·72	42·28	36·00	1·70	0·26	4·59	1·94	22·50	3·44	1·20	12·81	11·77	1·88	2·74	39·49

* 1956 Crop.

TABLE I (b)—*Chemical Composition of Black Tea—Small Pekoe*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
66	CTC	5·88	5·36	62·40	37·60	32·96	1·55	0·24	4·70	2·00	21·86	4·17	0·40	13·24	12·95	0·93	2·12	41·59
41	C	7·70	6·40	67·60	32·40	37·36	1·76	0·33	5·07	2·06	24·65	3·91	0·97	13·66	12·66	0·81	1·89	42·20
14	C	7·57	6·66	60·17	39·83	38·26	1·80	0·45	4·93	2·05	23·65	3·97	0·88	11·46	12·87	1·62	2·57	44·30
71	C	9·18	5·79	61·69	38·31	34·15	1·61	0·33	4·43	1·89	21·13	3·63	0·67	14·60	15·26	0·83	1·93	41·68
37	C	6·72	6·68	62·97	37·03	36·75	1·73	0·40	4·62	2·23	20·77	4·24	0·87	14·23	13·95	0·80	1·34	42·96
75	C	8·62	6·92	62·01	37·99	39·82	1·87	0·37	4·99	2·20	23·56	4·23	0·79	13·13	11·95	0·68	1·37	40·22
46	CTC	7·13	6·42	67·17	32·83	37·63	1·77	0·25	5·08	2·46	22·95	4·88	0·50	9·83	15·65	2·52	3·37	43·56
61	C	5·84	6·33	69·60	30·40	38·33	1·62	0·28	5·44	2·23	26·45	4·18	0·80	12·77	10·73	0·93	1·59	38·87
CACHAR																		
176*		7·03	6·60	56·13	43·87	35·37	1·67	0·56	5·53	2·14	27·75	3·88	0·92	10·88	11·41	2·15	2·69	38·73
26	C	6·66	5·21	56·53	43·47	31·35	1·47	0·21	4·99	2·04	23·35	4·34	0·96	11·19	12·82	1·34	2·14	41·13
204*		7·04	6·42	57·93	42·07	41·41	1·95	0·57	4·94	1·85	23·95	3·84	1·43	12·92	12·20	2·88	3·47	40·65
DOOARS																		
33	C	7·61	6·34	60·39	39·61	38·66	1·82	0·69	4·83	2·23	24·56	4·50	0·74	11·39	15·23	0·95	1·35	44·38
52	C	6·99	5·99	65·10	34·90	30·77	1·45	0·28	4·68	2·13	21·03	4·53	1·52	12·30	15·96	0·81	1·89	43·65
81		6·92	5·78	55·83	44·17	32·41	1·52	0·27	5·79	2·69	30·11	3·75	1·39	13·32	11·28	1·00	1·68	41·53
65		7·73	6·59	71·72	28·28	36·32	1·75	0·27	4·51	2·06	20·65	4·19	1·04	15·24	12·32	0·68	1·36	42·82
18	C	7·81	7·06	56·47	43·53	27·80	1·31	0·34	4·73	2·28	21·26	4·60	0·92	9·48	13·37	1·69	2·36	44·63
195*		7·28	6·59	66·23	33·77	43·62	2·05	0·54	5·13	2·22	24·88	3·97	1·37	12·93	14·63	2·20	3·31	43·13
TERAI																		
7	C	7·19	6·67	53·09	46·91	40·97	1·93	0·94	4·58	2·05	21·25	4·09	1·18	11·62	11·35	1·45	1·89	45·70
	Average ..		6·31	62·43	37·57	36·07	1·68	0·39	4·91	2·15	23·26	4·20	0·94	12·52	13·31	1·21	2·01	43·28

TABLE I (b)—*Chemical Composition of Black Tea—Small Pekoe—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
143	CTC	6·60	6·23	64·09	35·91	36·41	1·71	0·34	4·72	1·78	22·28	4·00	0·81	11·38	11·18	1·61	3·21	39·30
109	C	10·14	5·84	57·92	42·08	31·16	1.47	0·10	4·67	2·20	21·91	4·04	1·13	11·47	11·49	1·18	2·09	42·85
156	C	7·32	6·02	66·95	33·05	37·22	1·75	0·13	4·68	1·81	22·30	3·85	1·55	10·19	14·19	1·35	2·16	39·97
129	C	8·27	5·65	66·18	33·82	33·69	1·58	0·36	4·32	1·57	21·03	3·31	0·98	13·07	13·29	1·36	1·47	42·95
126	C	5·72	5·97	67·89	32·11	35·60	1·67	0·22	4·58	1·76	22·19	3·57	0·92	13·41	10·23	1·01	1·43	40·03
160	C	8·03	6·56	59·16	40·84	43·50	2·05	0·15	4·69	1·94	22·72	3·63	1·96	13·48	11·77	1·38	1·77	41·00
113	CTC	9·80	6·10	67·12	32·88	39·91	1·88	0·77	4·88	1·97	22·78	4·28	0·58	11·24	12·30	1·18	2·22	43·01
93	C	7·55	6·18	65·22	34·78	36·23	1·71	0·29	4·84	1·93	22·72	4·17	1·14	11·10	10·07	0·68	1·35	40·24
323*		6·52	6·35	57·96	42·04	31·56	1·50	0·12	4·72	2·27	21·63	4·37	0·85	10·34	14·84	1·67	2·01	42·47
230*		8·23	5·86	59·97	40·03	39·22	1·85	0·12	4·89	2·20	22·19	4·61	0·98	11·76	12·82	1·96	3·23	45·76
333*		7·35	6·69	53·46	36·54	41·57	1·98	0·02	4·09	2·16	19·44	3·38	1·00	14·37	10·76	1·69	1·77	43·28
CACHAR																		
152	C	8·72	5·69	65·16	34·84	29·61	1·39	0·10	4·61	1·80	22·50	3·50	2·22	11·90	11·04	2·06	3·29	38.14
358*		9·32	5·70	55·79	44·21	34·19	1·63	0·08	4·58	1·92	22·94	3·14	1·81	13·23	12·28	2·14	3·03	39·25
DOOARS																		
172		8·76	6·72	63·41	36·59	49·87	2·35	0·21	4·27	1·89	26·02	3·68	1·15	14·71	11·51	1·78	3·43	40·70
148	C	8·14	5·95	75·02	24·98	41·38	1·95	0·23	4·86	1·85	23·40	3·87	0·50	11·97	14·31	1·77	3·81	40·13
139	C	7·86	6·38	56·86	43·14	42·86	2·01	0·13	4·88	1·89	23·57	3·84	0·62	13·25	12·18	1·36	3·53	37·22
179	C	7·46	5·75	69·11	30·89	40·53	1·91	0·06	4·91	1·97	23·97	3·72	1·28	12·80	10·98	1·82	3·50	37·82
169		8·59	5·85	62·61	37·39	38·30	1·80	0·05	4·63	1·97	21·81	3·95	1·11	14·36	11·29	1·64	3·42	38·21
357	C	7·55	6·05	66·07	33·93	41·92	2·00	0·08	4·92	2·23	23·38	4·10	0·66	11·12	14·84	2·03	3·25	44·19
176		9·12	6·28	69·93	37·07	42·91	2·02	0·46	4·87	2·05	29·73	3·98	1·17	12·73	11·81	1·97	3·81	39·41

TABLE I (b)—*Chemical Composition of Black Tea—Small Pekoe—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TERAI																		
89	C	8·27	6·01	72·50	27·50	41·09	1·93	0·53	5·34	2·52	27·56	3·22	1·52	10·27	11·42	1·09	1·91	38·13
DARJEELING																		
102	C	6·97	6·33	61·41	38·59	32·77	1·54	0·34	5·02	1·68	25·37	3·51	1·09	11·18	10·91	0·84	1·34	40·91
	Average ..		6·06	65·19	34·81	39·58	1·96	0·21	5·08	1·97	24·61	3·68	1·19	12·50	12·05	1·68	3·12	39·44

TABLE I (b)—*Chemical Composition of Black Tea—Small Pekoe—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
249	CTC	7·15	6·09	57·70	42·30	39·21	1·85	0·03	3·88	1·34	19·31	2·73	1·06	11·52	11·47	2·87	5·38	40·02
230	C	6·97	5·86	63·84	36·16	40·85	1·92	0·12	3·55	1·44	17·13	2·82	0·87	13·77	13·51	2·83	3·49	41·39
239	C	6·78	5·66	64·42	35·58	24·14	1·13	0·11	3·42	1·18	16·56	2·66	1·22	14·70	12·59	2·20	2·90	39·37
207	C	7·27	6·17	62·93	37·07	39·90	1·88	0·16	4·42	1·66	22·13	3·05	1·19	13·76	13·72	1·18	1·35	40·23
244	C	6·85	6·53	57·60	42·40	37·04	1·74	0·44	3·63	1·31	18·13	2·53	1·42	15·27	10·78	2·31	3·76	39·10
221	CTC	5·94	6·60	59·46	40·54	44·13	2·08	0·20	3·96	1·66	18·81	3·28	0·90	12·81	13·37	2·00	4·25	41·52
183	C	7·39	6·70	65·66	34·34	35·09	2·12	0·24	4·30	2·20	21·69	2·86	0·89	13·45	12·58	2·70	4·86	40·09
522*		6·48	5·84	58·35	41·65	34·75	1·64	0·37	4·43	1·69	21·35	3·51	1·09	11·54	11·61	2·00	2·92	41·71
567*		8·36	6·47	64·42	35·58	45·80	2·16	0·16	4·20	1·57	20·07	3·42	0·73	14·83	12·28	1·09	1·36	36·56
CACHAR																		
259	C	7·23	5·29	58·82	41·18	27·30	1·29	0·01	3·99	1·47	19·63	2·96	1·36	12·39	11·54	3·50	5·12	39·51
535*		9·49	6·04	56·43	43·57	33·15	1·56	0·50	4·29	1·86	20·79	3·34	1·48	11·98	9·39	2·25	3·20	34·26
626*		7·84	5·90	52·40	47·60	32·55	1·53	0·60	4·06	1·32	20·29	2·82	1·05	12·17	12·39	2·85	2·98	36·40
DOOARS																		
212	C	7·11	6·43	65·30	34·70	44·68	2·10	0·29	4·65	1·81	22·88	3·44	1·31	11·49	12·54	0·84	1·01	42·56
234	C	6·99	6·33	62·10	37·90	37·63	1·77	0·30	3·76	1·59	18·81	2·59	1·07	12·45	13·51	2·56	3·76	38·55
193	C	5·84	5·92	63·31	36·69	32·93	1·55	0·34	4·47	2·06	21·88	3·39	1·36	11·88	8·50	0·83	1·16	37·82
264		8·00	6·50	59·59	40·41	38·59	1·82	0·04	3·77	1·35	18·44	2·84	1·35	18·13	9·07	2·04	2·72	35·30
404	C	7·67	6·41	60·30	39·70	45·48	1·86	0·25	5·28	1·79	24·81	4·54	1·02	13·36	12·72	1·95	2·12	41·71

TABLE I (b)—*Chemical Composition of Black Tea—Small Pekoe—(Concluded.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TERAI 227	C	7·90	6·26	53·36	36·64	46·14	2·17	0·01	3·97	1·43	19·25	3·10	1·03	13·12	13·65	2·99	3·26	41·69
DARJEELING 188	C	6·80	6·01	52·87	47·43	31·66	1·49	0·58	4·23	1·82	21·06	2·97	0·83	13·44	12·50	3·09	4·51	35·86
	Average ..		6·22	60·51	39·49	38·30	1·79	0·30	4·26	1·67	20·91	3·17	1·14	13·18	12·25	2·31	3·27	39·67
Average of all Seasons ..			6·18	62·14	37·86	37·26	1·75	0·29	4·42	1·91	22·15	3·68	1·08	12·60	12·22	1·69	2·60	40·88

* 1956 Crop.

TABLE I (c)—*Chemical Composition of Black Tea—Broken Orange Pekoe*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
42	C	7·39	5·84	62·00	38·00	31·67	1·49	0·28	5·38	2·05	26·05	4·19	0·58	11·52	14·32	0·95	1·88	43·14
15	C	7·65	6·27	53·23	46·73	35·58	1·67	0·34	5·12	2·17	24·00	4·44	0·97	9·85	12·59	1·48	1·90	43·32
70	C	8·31	5·19	66·32	33·68	30·99	1·45	0·31	4·84	1·94	22·30	4·40	0·40	11·62	15·16	0·82	1·91	40·41
36	C	6·97	6·71	71·17	28·83	38·70	1·82	0·34	5·16	2·36	23·58	4·44	0·66	11·14	13·99	0·94	1·08	44·15
76	C	7·14	5·87	61·15	38·85	34·34	1·61	0·47	4·74	2·15	22·14	4·15	0·76	11·52	11·53	2·36	3·10	40·33
60	C	6·66	5·86	64·96	35·04	38·17	1·79	1·03	5·51	2·27	26·23	4·55	0·58	10·58	11·16	0·68	1·61	39·70
CACHAR																		
205*		7·73	6·83	49·88	50·12	36·75	1·73	0·50	5·56	2·34	27·44	4·07	0·93	9·57	13·39	2·35	3·38	35·29
DOOARS																		
32	C	8·00	6·42	53·00	37·00	37·11	1·74	0·80	4·97	2·30	25·41	4·64	0·73	13·47	15·98	1·09	1·90	43·85
51	C	7·20	5·73	59·63	40·37	27·86	1·40	0·71	5·24	2·26	23·24	5·26	1·53	10·52	14·52	0·94	1·62	45·47
19	C	8·66	6·77	49·59	50·41	28·05	1·32	0·61	4·77	2·44	21·61	4·55	0·95	9·52	14·41	1·19	1·37	44·67
187*	C	7·27	6·68	56·56	43·44	33·32	1·57	0·97	5·63	1·78	28·83	3·50	1·21	10·21	12·23	1·55	2·17	38·19
196*	C	6·74	6·48	65·78	34·22	43·34	2·04	0·34	5·23	2·19	24·81	4·35	0·99	11·52	16·42	1·92	3·20	42·98
TERAI																		
6	C	6·69	6·28	48·35	51·65	26·47	1·25	1·22	4·95	2·19	22·01	4·95	1·15	9·23	13·36	1·47	1·88	44·42
DARJEELING																		
11	C	6·03	7·39	52·15	47·85	33·26	1·56	0·56	4·19	1·81	19·72	3·59	1·04	12·94	11·06	1·33	2·93	41·24
224*		7·42	6·70	62·73	37·27	37·81	1·78	0·44	5·61	1·98	28·50	3·64	1·18	10·14	14·10	2·03	2·87	41·05
	Average ..		6·33	58·43	41·57	34·23	1·62	0·59	5·13	2·15	24·39	4·32	0·91	10·89	13·61	1·41	2·19	41·88

TABLE I (c)—*Chemical Composition of Black Tea—Broken Orange Pekoe—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·424	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
108	C	9·74	5·88	59·79	40·21	34·90	1·64	0·13	5·08	2·13	24·12	4·23	1·08	13·59	10·69	1·39	2·49	42·54
155	C	6·97	5·90	66·58	33·42	34·93	1·64	0·10	4·81	1·83	22·56	4·16	1·71	11·52	14·14	1·22	1·75	40·27
128	C	8·63	5·67	64·74	35·26	31·42	1·48	0·16	4·55	1·80	21·44	3·88	0·69	11·18	12·78	1·26	1·42	44·82
127	C	6·00	6·11	61·05	38·95	31·49	1·48	0·44	4·94	1·81	23·84	3·90	0·98	12·16	10·63	0·85	1·17	40·54
159	C	7·26	6·15	62·47	37·53	37·74	1·77	0·27	4·92	1·90	23·64	3·94	1·56	11·94	12·89	1·35	1·62	39·36
325*		6·97	5·39	67·25	32·75	30·63	1·46	0·02	5·07	2·19	23·25	4·69	0·68	10·48	14·54	1·51	2·18	43·05
92		7·91	5·83	63·08	36·92	34·48	1·62	0·15	5·03	1·95	23·48	4·41	0·88	10·26	11·58	0·85	1·02	39·49
233*		6·86	5·58	52·48	47·52	34·18	1·61	0·22	5·37	2·34	24·06	5·27	1·38	10·42	15·39	1·93	2·68	43·86
237*		7·75	5·61	66·72	33·28	34·69	1·63	0·14	5·14	2·41	22·63	5·25	0·55	12·38	19·34	2·03	2·37	45·75
332*		7·49	6·15	66·41	33·59	38·38	1·83	0·01	4·64	1·84	21·63	4·09	0·64	12·96	13·47	1·32	2·34	43·03
DOOARS																		
147	C	7·61	6·13	60·25	39·75	36·25	1·70	0·31	4·67	1·88	22·51	3·70	0·57	12·88	13·39	1·62	2·98	40·09
138	C	6·81	6·18	58·65	41·35	38·64	1·82	0·38	5·04	2·00	24·16	4·07	0·73	11·38	11·20	1·48	3·22	38·75
225	CTC	6·05	6·02	54·77	45·23	32·98	1·55	0·15	5·07	2·12	23·56	4·51	1·01	12·06	15·97	1·19	2·99	41·83
331		7·44	6·27	62·83	37·12	40·52	1·93	0·02	4·34	1·82	20·00	3·95	1·02	14·19	13·08	1·27	1·77	42·46
353*		9·59	5·58	62·21	37·79	38·44	1·83	0·15	5·00	2·30	26·13	4·45	0·99	11·41	12·31	2·70	3·87	35·34
180		7·65	5·74	69·16	30·84	39·53	1·86	0·22	5·19	2·08	25·23	4·00	1·03	11·36	11·00	1·90	3·67	39·31
173		8·63	6·54	61·67	38·33	48·17	2·27	0·24	4·52	1·95	27·57	3·73	1·31	14·09	11·49	1·91	3·56	40·80
177		8·73	6·07	59·08	40·32	41·64	1·96	0·42	4·83	1·93	27·49	4·01	1·30	12·28	11·14	1·92	3·70	39·16
TERAI																		
88	C	8·54	5·44	55·38	44·62	36·45	1·71	0·38	5·69	2·62	21·80	4·17	1·02	11·21	11·82	1·09	1·91	37·61

TABLE I (c)—*Chemical Composition of Black Tea—Broken Orange Pekoe—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DARJEELING																		
105	C	7·68	6·06	78·33	29·67	39·54	1·86	0·25	4·83	1·82	23·88	3·50	1·02	11·68	12·28	1·22	2·44	42·03
165	C	8·67	5·52	63·84	36·16	31·76	1·49	0·18	3·99	1·23	20·32	2·58	2·28	13·43	11·44	1·39	1·78	38·34
168	C	7·30	5·75	60·16	39·84	35·05	1·65	0·11	4·08	1·21	20·02	2·83	1·63	13·97	10·85	1·62	2·70	39·10
100	C	7·80	6·61	62·58	37·42	33·09	1·56	0·45	4·56	1·87	21·79	3·72	1·07	10·68	11·57	0·35	1·36	41·69
Average ..			5·92	62·61	37·39	36·30	1·71	0·21	4·84	1·96	23·35	4·05	1·09	12·07	12·74	1·45	2·39	40·84

TABLE I (c)—*Chemical Composition of Black Tea—Broken Orange Pekoe—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
231	C	6·63	5·84	64·48	35·52	37·22	1·75	0·03	3·81	1·71	18·63	2·88	0·91	12·37	12·81	2·68	3·75	37·96
240	C	7·08	5·54	67·20	42·80	24·22	1·14	0·15	3·80	1·25	16·88	2·81	1·02	12·32	13·46	2·05	2·91	35·52
206	C	7·10	6·10	60·14	39·86	36·60	1·72	0·24	4·74	1·70	23·31	3·51	1·29	11·29	12·71	0·84	1·18	41·06
245	C	6·35	6·32	51·55	48·45	34·17	1·61	0·54	3·72	1·17	17·94	2·96	1·36	12·59	11·22	2·08	2·88	39·75
184	C	7·15	6·50	64·00	36·00	40·66	1·92	0·24	5·02	2·33	24·94	3·59	0·90	10·26	12·93	2·42	4·00	41·03
574*		4·91	6·65	63·61	36·39	43·64	2·06	0·49	4·38	1·58	21·56	3·22	1·17	11·13	12·31	1·64	1·97	39·07
491*		5·84	6·16	58·63	41·37	43·62	2·05	0·57	4·36	1·76	19·82	4·12	1·06	13·35	13·69	1·59	1·99	37·17
DOOARS																		
211	C	6·61	6·43	64·62	35·38	44·78	2·11	0·48	4·45	1·90	21·81	3·31	0·95	13·03	13·09	0·83	0·83	40·90
216	C	7·35	6·30	62·85	37·15	41·02	1·93	0·45	4·84	1·66	23·94	3·50	1·00	10·89	12·25	1·52	2·19	40·37
235	C	7·07	6·40	58·34	41·66	36·06	1·70	0·52	3·92	1·60	19·06	3·00	0·94	11·56	13·20	2·83	4·04	38·31
194	C	6·17	5·91	58·02	41·98	34·64	1·63	0·24	4·36	1·83	21·00	3·45	0·97	12·73	8·88	2·50	8·00	37·25
568*	CTC	7·20	6·04	59·05	40·95	38·25	1·80	0·38	4·39	1·42	21·83	3·11	1·34	11·95	11·74	1·01	1·35	38·48
410*	CTC	6·68	6·03	56·38	43·62	39·11	1·84	0·09	4·33	1·69	20·44	3·66	0·68	12·06	13·25	1·01	2·00	40·51
563		7·64	6·04	68·41	31·59	41·42	1·95	0·15	4·45	1·52	21·77	3·36	0·91	12·98	12·19	1·48	1·89	40·38
562*		7·98	6·66	65·53	34·47	41·83	1·97	0·18	4·54	1·58	22·42	3·31	0·87	13·32	13·11	1·77	2·17	42·91
TERAI																		
226	C	7·04	6·16	63·44	36·56	36·58	1·72	0·17	4·45	1·72	21·69	3·41	0·96	9·72	14·18	2·30	4·30	43·59

TABLE I (c)—*Chemical Composition of Black Tea—Broken Orange Pekoe—(Concluded.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash: in cc. of N. HCl per 100 g.	Alkalinity of soluble ash: in g. of K_2O per 100 g.	Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %: Before inversion.	Sugars %: After inversion.	Total sol solids %
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DARJEELING																		
218	C	6·68	5·85	54·83	45·17	34·82	1·64	0·56	3·87	1·46	18·88	2·94	1·25	14·23	12·65	1·88	4·29	39·19
189	C	7·10	5·77	55·27	44·73	33·64	1·58	0·24	4·29	1·74	21·69	2·83	1·67	14·20	11·36	2·96	4·31	37·88
397*		7·33	6·00	64·63	35·37	36·04	1·70	0·06	4·86	1·74	23·51	3·82	1·39	12·45	14·35	2·15	3·50	40·96
543*		7·53	5·85	67·01	32·99	40·83	1·92	0·20	4·18	1·23	20·55	3·23	0·83	12·86	12·62	2·36	4·60	40·61
405*		7·84	6·59	58·67	41·33	48·82	2·30	0·91	5·29	1·97	24·81	4·58	0·99	12·69	12·54	1·19	1·53	40·68
Average	..		6·17	60·79	39·21	37·98	1·81	0·33	4·38	1·65	21·26	3·36	1·07	12·28	12·76	1·86	2·83	39·69
Average of all Seasons	..		6·11	60·77	39·23	36·07	1·71	0·35	4·75	1·89	22·67	3·90	1·03	11·80	13·01	1·58	2·46	40·72

* 1956 Crop.

TABLE I (d)—*Chemical Composition of Black Tea—Fannings*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
218*		7·78	6·19	67·71	32·29	34·97	1·65	0·36	5·41	2·04	26·38	4·14	1·19	10·66	14·92	1·02	2·71	33·62
67	CTC	5·83	5·58	57·53	42·47	30·91	1·46	0·28	4·82	2·02	22·50	4·23	0·54	14·88	14·42	0·80	1·59	39·82
68	CTC	6·38	5·63	62·93	37·07	33·54	1·58	0·22	4·73	1·94	22·34	4·01	0·47	13·56	12·58	0·94	1·60	41·77
43	C	8·65	5·79	63·10	36·90	37·36	1·76	0·49	5·42	2·04	26·00	4·37	0·35	11·58	13·82	0·96	1·91	41·66
16	C	8·22	6·42	55·89	44·11	34·13	1·61	0·27	5·07	2·33	24·32	4·08	0·79	11·07	13·88	1·70	2·05	43·96
72	C	8·85	5·72	69·99	40·01	34·69	1·63	0·25	4·67	1·93	21·99	3·99	0·71	12·14	14·29	0·69	1·92	41·16
38	C	6·97	5·99	71·42	28·58	38·28	1·80	0·28	4·88	2·30	22·30	4·28	0·84	12·42	14·68	0·81	1·34	44·27
77	C	7·51	5·56	51·91	48·09	32·92	1·55	0·22	4·81	2·23	21·10	4·42	0·96	10·14	11·93	2·53	3·38	41·19
47	CTC	6·69	5·75	55·60	34·40	29·61	1·39	0·39	5·71	2·51	19·56	5·47	0·52	10·14	16·24	2·34	2·78	43·08
48	CTC	6·82	5·79	65·77	34·23	30·67	1·44	0·30	5·78	2·47	25·54	5·24	0·53	10·02	14·17	2·18	2·79	42·73
62	C	4·54	5·69	57·21	42·79	31·08	1·46	0·11	5·36	2·20	25·40	4·49	0·77	12·49	11·91	0·92	1·83	38·96
19*		8·65	5·59	68·93	31·07	32·94	1·55	0·27	5·13	2·12	24·19	4·37	1·07	11·29	14·98	1·36	2·04	37·14
CACHAR																		
56	Leggcut	7·75	6·70	65·85	34·15	33·01	1·55	0·25	5·05	2·04	24·45	3·94	0·69	11·98	10·95	1·08	1·63	37·09
57	Leggcut	7·67	6·54	65·77	34·23	39·42	1·85	0·29	4·93	2·10	23·36	4·13	0·56	12·48	10·28	1·22	1·90	35·72
210*		7·77	6·32	52·13	47·87	33·89	1·60	0·16	4·87	1·82	24·19	3·48	1·20	11·41	14·15	1·35	—	34·06
211*		6·93	6·01	53·42	46·58	32·50	1·58	0·31	4·71	1·87	23·13	3·50	1·10	11·71	12·51	1·68	2·03	32·99
202*		7·34	6·48	58·92	41·08	43·62	2·05	0·75	5·20	1·92	25·44	3·92	1·36	12·93	12·75	2·98	3·05	39·82

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(contd.)*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DOOARS																		
34	C	7·93	5·92	56·18	43·82	34·14	1·60	0·81	5·34	2·37	27·56	4·81	0·76	9·96	15·51	1·02	1·63	43·71
53	C	6·90	6·13	54·56	45·44	27·78	1·31	0·70	5·19	2·26	23·10	5·21	1·51	10·53	16·28	0·67	1·61	42·86
22	Leggcut	8·67	6·02	49·07	50·93	31·11	1·46	0·79	4·44	1·85	20·49	4·02	0·49	10·75	12·48	1·36	3·26	42·86
80		8·58	5·88	61·36	38·64	34·87	1·64	0·10	5·20	2·03	24·85	4·24	1·35	12·41	11·29	2·05	2·39	36·42
82		8·99	5·54	66·23	33·77	32·09	1·51	0·12	6·23	2·77	30·53	4·67	1·35	13·51	11·20	1·20	1·37	40·93
1	Leggcut	6·54	5·29	50·97	49·03	31·18	1·47	0·36	4·15	1·90	18·45	4·15	1·32	10·93	12·78	1·61	3·48	45·10
2	Leggcut	6·36	6·39	56·10	43·90	41·46	1·97	0·38	4·04	1·88	19·21	3·35	0·94	13·92	11·98	1·47	2·14	42·55
28	Leggcut	5·54	5·63	56·93	43·07	34·03	1·60	0·32	4·70	1·91	20·79	4·76	0·81	10·28	12·44	0·99	1·85	40·98
29		6·50	6·00	54·26	45·74	34·76	1·63	0·60	4·45	1·93	19·83	4·43	0·78	11·49	16·84	1·00	1·87	43·88
20	C	7·78	6·39	46·67	53·33	27·84	1·31	0·66	4·99	2·56	22·51	4·81	0·82	9·38	13·97	1·36	1·69	45·81
194*	C	7·40	6·32	66·69	33·31	42·66	2·01	0·68	5·55	2·22	26·56	4·49	1·18	9·51	14·70	2·96	5·23	37·99
189*	CTC	7·30	6·76	58·13	41·87	27·16	1·28	0·44	5·77	2·18	28·88	3·98	1·23	10·66	11·69	1·71	2·51	39·91
191*	CTC	6·94	6·77	58·82	41·18	39·76	1·87	0·58	5·62	2·04	27·31	4·34	1·63	10·17	12·79	3·10	3·27	40·78
123*	TC	6·59	6·38	62·39	37·61	46·34	2·18	0·28	5·71	2·02	27·73	4·41	0·62	10·07	10·90	3·21	4·67	39·71
122*	TC	7·10	6·64	63·41	36·59	38·77	1·83	0·26	5·36	1·93	24·31	5·10	1·07	10·83	16·29	1·74	5·27	41·97
TERAI																		
8	C	7·23	6·11	51·13	48·87	28·84	1·36	1·12	5·20	2·26	23·79	4·83	0·90	8·28	12·82	1·35	1·89	45·21
DARJEELING																		
12	C	5·56	6·77	47·31	52·69	29·57	1·39	0·70	4·89	1·97	24·19	3·53	1·08	11·22	11·01	1·46	2·38	40·77
223*		6·65	6·48	51·24	48·76	32·68	1·54	0·40	5·64	1·97	28·00	4·03	1·19	10·07	15·32	1·25	1·34	41·67
	Average ..		6·09	58·73	41·27	33·96	1·65	0·42	5·11	2·11	24·29	4·29	0·94	11·54	13·39	1·54	2·36	40·63

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
144	C	6·67	5·97	66·27	33·73	38·58	1·81	0·25	4·76	1·66	22·24	4·06	0·89	10·72	11·19	1·47	3·22	41·90
145	C	7·85	6·16	59·68	40·32	36.90	1·73	0·34	4·80	1·89	22·62	4·09	0·90	11·01	13·01	1·36	2·98	41·52
110	C	9·89	6·11	55·86	44·14	31·08	1·46	0·50	5·18	2·24	24·28	4·49	1·21	14·04	11·28	1·39	1·94	43·29
157	C	7·18	5·62	63·19	36·81	37·71	1·77	0·65	4·69	1·79	22·34	3·87	1·94	11·29	12·92	1·35	1·76	41·70
130	C	8·48	5·47	59.93	40·07	34·42	1·62	0·18	4·50	1·86	21·43	3·71	0·97	11·03	11·84	1·31	1·42	42·24
123	C	6·30	5·85	63·87	36·13	33·09	1·56	0·18	4·76	1·81	22·75	3·91	1·04	12·55	9·76	1·55	1·76	38·59
161	C	7·18	6·18	59·78	40·22	38·24	1·80	0·32	4·98	1·85	23·86	4·02	1·43	10·81	12·08	1·37	1·76	45·79
114	CTC	8·04	5·93	62·60	37·40	33·19	1·56	0·32	4·99	1·72	22·59	4·73	0·76	12·62	11·60	1·22	1·90	42·62
115	CTC	7·87	5·57	65·10	34·90	28·29	1·33	0·32	5·00	1·98	23·29	4·41	0·80	10·71	11·76	1·43	2·31	43·10
94	C	5·97	5·71	65·98	34·02	33·78	1·59	0·26	4·98	1·96	23·24	4·37	0·92	9·89	10·29	0·83	1·33	38·93
324*		7·68	5·34	59·58	40·42	30·33	1·44	0·12	4·92	2·21	22·32	4·69	0·59	10·28	15·42	1·35	1·69	45·48
231*		6·67	5·40	58·98	41·02	33·04	1·56	0·23	5·52	2·36	24·75	5·40	1·07	9·76	15·51	1·67	2·85	44·63
234*		6·72	5·40	56·37	43·63	34·68	1·63	0·24	5·48	2·34	24·63	5·34	1·43	9·29	13·81	2·01	2·68	42·81
236*		8·97	5·58	66·01	43·99	34·61	1·63	0·26	5·20	2·42	23·25	5·12	0·78	11·96	18·99	1·03	4·12	45·64
328*		7·60	5·89	58·28	41·72	36·17	1·72	0·02	4·71	2·20	21·09	4·29	1·00	11·19	13·10	1·27	1·35	42·98
329*		7·55	5·86	59·87	40·13	37·32	1·76	0·20	5·16	1·85	24·44	4·33	0·69	9·57	17·18	2·11	2·37	43·70
CACHAR																		
136	Leggcut	7·69	6·46	64·74	35·26	37·30	1·73	0·52	4·43	1·69	22·26	3·29	0·86	12·40	8·44	1·41	1·52	43·03

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DOOARS																		
149	C	8·41	5·54	68·66	31·34	34·93	1·64	0·34	4·60	2·01	20·74	4·44	0·14	9·45	13·09	1·09	2·46	40·34
140	C	7·35	6·23	61·13	38·87	44·26	2·08	0·33	4·91	1·94	23·61	3·92	0·82	12·16	11·27	1·49	2·49	38·76
133	Leggeut	7·29	6·35	66·18	33·82	34·31	1·61	0·19	4·83	1·90	23·33	3·80	0·85	16·65	9·86	1·13	1·30	41·86
83	Leggeut	7·21	5·98	62·13	37·87	36·24	1·71	0·10	5·92	2·48	30·72	3·48	0·74	12·37	11·32	1·17	1·69	44·78
84	Leggeut	8·73	5·95	60·96	39·04	36·53	1·72	0·24	5·97	2·60	29·47	4·34	0·74	10·72	11·97	1·02	2·05	44·44
118	Leggeut	8·13	6·43	67·15	32·82	42·19	1·99	0·25	4·86	1·72	23·72	3·69	0·70	10·74	10·87	1·43	1·77	40·33
119	Leggeut	7·07	6·53	60·34	39·66	40·63	1·91	0·23	4·61	1·81	22·55	3·47	0·96	12·00	9·47	1·28	1·48	38·64
181	C	7·51	5·55	69·71	30·29	39·46	1·85	0·29	5·18	2·05	25·25	3·95	1·19	11·24	10·20	1·83	3·92	38·46
170		8·61	5·67	62·48	37·52	37·75	1·78	0·11	5·10	2·01	25·13	3·74	1·49	11·10	12·04	1·50	3·15	38·29
312*	TC	7·29	6·28	66·12	33·88	40·40	1·92	0·16	4·56	2·10	21·25	4·02	0·88	11·78	14·27	2·19	3·71	43·69
313*	TC	6·19	5·69	64·42	35·58	39·80	1·89	0·95	5·16	1·92	25·25	3·88	0·84	10·07	13·34	0·91	2·03	42·28
227*	CTC	8·32	5·74	58·74	41·26	37·10	1·75	0·12	5·13	1·99	24·38	4·26	1·84	11·58	16·93	2·05	2·56	42·54
229*	CTC	7·55	5·86	59·87	40·13	37·32	1·76	0·20	5·16	1·85	24·44	4·33	0·69	9·57	17·18	2·11	2·37	43·70
356*	C	7·01	5·82	63·60	36·40	38·98	1·86	0·23	5·16	2·30	24·63	4·23	0·65	9·99	16·74	1·88	2·42	42·64
174		8·88	6·48	66·13	33·87	43·35	2·04	0·06	4·82	2·09	29·41	4·02	1·08	12·28	11·90	1·78	3·29	40·74
178		8·93	6·23	63·00	37·00	40·64	1·91	0·31	4·83	1·98	29·45	4·08	1·12	12·78	11·53	1·92	3·29	39·21
TERAI																		
90	C	8·86	5·73	54·46	45·54	35·05	1·65	0·34	5·93	2·97	29·65	4·11	1·23	10·98	11·54	1·37	1·92	40·22
DARJEELING																		
106	C	8·62	5·82	72·65	27·35	38·30	1·80	0·10	4·77	1·68	23·47	3·53	1·34	12·21	12·79	1·09	2·47	42·02
166	C	9·33	5·56	64·67	35·33	31·63	1·49	0·22	4·13	1·24	21·20	2·82	1·88	13·19	11·80	1·09	1·64	38·55
167	C	7·60	5·89	61·03	38·97	35·56	1·67	0·19	4·49	1·36	22·44	3·12	1·53	12·93	10·82	1·39	1·78	39·77
101	C	7·28	6·28	62·61	37·39	34·93	1·64	0·15	4·77	1·64	23·71	3·38	1·20	10·79	11·69	0·67	1·35	41·69
	Average ..		5·90	62·63	37·31	36·53	1·72	0·26	4·97	1·99	24·08	4·07	1·03	11·39	12·60	1·43	2·27	41·87

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
250	C	7·49	6·32	57·88	42·12	37·84	1·78	0·01	3·98	1·34	20·00	2·70	1·05	10·92	11·02	2·53	4·05	40·64
251	C	7·18	6·18	56·14	43·86	38·25	1·80	0·01	3·85	1·29	19·38	2·61	1·05	11·66	11·32	2·70	3·71	38·82
232	C	6·64	5·96	61·34	38·66	35·88	1·69	0·35	3·89	1·86	19·00	2·93	1·08	12·10	14·11	2·41	3·48	39·74
241	C	6·76	5·73	62·12	37·88	24·02	1·13	0·08	3·60	1·12	17·94	2·54	1·72	12·61	12·21	2·25	3·11	39·05
208	C	7·19	6·18	60·21	39·79	38·80	1·82	0·12	4·66	1·58	22·94	3·44	0·87	12·27	14·04	1·01	1·01	39·09
246	C	7·20	6·45	51·75	48·25	35·04	1·65	0·52	3·63	1·29	17·75	2·74	1·28	14·06	10·98	2·37	4·31	38·80
222	CTC	5·59	6·62	62·79	37·21	40·16	1·89	0·14	4·67	1·72	22·63	3·64	0·99	10·08	13·80	1·81	3·97	40·52
223	CTC	5·75	6·47	62·14	37·86	38·91	1·83	0·18	4·57	1·59	23·19	2·99	1·17	10·38	13·01	2·00	4·24	42·15
185	C	6·67	6·71	62·10	37·90	43·67	2·06	0·32	4·61	2·10	22·81	3·32	0·90	12·21	11·97	2·66	4·29	40·36
523*		8·30	5·62	57·28	42·72	34·32	1·62	0·49	4·36	1·87	21·13	3·39	2·03	11·41	11·31	2·13	2·72	41·95
564*		8·41	6·57	64·07	35·93	43·41	2·05	0·21	4·56	1·53	22·03	3·59	0·88	13·51	12·74	0·93	1·37	40·07
565*		7·88	6·17	62·56	37·44	41·79	1·75	0·05	4·70	1·74	22·71	3·65	0·91	11·03	13·10	1·09	1·36	39·07
575*		4·60	6·47	64·94	35·06	42·98	2·02	0·46	4·46	1·70	22·19	3·15	1·07	11·57	12·27	1·63	2·62	42·62
490*		4·70	6·10	63·19	36·81	36·70	1·66	0·71	4·63	1·81	21·98	2·86	1·00	11·40	13·26	1·64	1·88	36·67
CACHAR																		
197	CTC	6·04	6·59	56·02	43·98	35·65	1·68	0·72	3·89	1·66	18·88	3·00	0·99	12·80	9·58	2·83	4·65	41·18
198		5·74	6·42	62·47	37·53	37·65	1·77	0·28	3·48	1·63	16·56	2·89	1·42	12·54	9·19	1·16	2·15	37·13
390*		8·82	5·16	53·09	46·91	33·47	1·58	0·49	4·83	1·65	23·06	3·94	1·15	13·24	11·39	2·87	4·65	36·58
392*		8·90	5·23	60·50	39·50	35·56	1·67	0·68	4·59	1·67	22·13	3·67	0·93	14·05	11·40	2·32	5·20	41·78
579*		6·15	5·58	53·23	46·77	31·97	1·51	0·30	3·94	1·73	19·86	2·64	1·46	13·46	9·46	1·66	2·00	38·15
580*		7·37	5·79	50·56	49·44	36·16	1·70	0·28	3·80	1·64	19·17	2·54	1·65	15·24	9·16	1·35	2·03	36·59

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DOOARS																		
213	C	7·10	6·10	62·78	37·22	37·68	1·77	0·47	5·31	1·86	26·00	3·99	1·00	10·91	13·70	1·01	1·18	40·74
236	C	6·75	6·42	58·12	41·88	33·13	1·65	0·36	3·89	1·57	19·25	2·81	2·07	11·44	12·83	2·68	3·75	38·32
261		7·78	5·95	65·57	43·92	34·43	1·62	0·01	4·27	1·39	21·06	3·02	1·27	12·13	11·61	1·36	2·44	38·24
201		5·93	5·92	61·83	38·17	34·55	1·62	0·27	3·88	1·64	18·25	3·35	1·45	13·36	18·50	2·16	2·82	37·99
202		6·09	6·59	66·64	33·36	41·01	1·93	0·37	3·61	1·70	16·69	3·27	1·88	20·72	8·16	2·66	3·17	38·80
253		7·18	6·18	58·10	41·90	39·87	1·88	0·03	4·04	1·34	19·94	2·95	0·82	12·14	11·65	2·52	3·03	38·06
254		7·44	6·58	59·60	40·40	41·06	1·93	0·02	3·53	1·32	16·88	2·86	1·20	15·20	10·03	2·70	3·72	37·47
195	C	6·30	5·96	61·69	38·31	32·02	1·51	0·22	4·42	1·77	21·44	3·43	1·09	12·72	10·67	2·69	3·17	38·75
265		7·70	6·34	59·15	40·85	37·38	1·78	0·02	4·30	1·60	20·81	3·35	1·81	15·81	10·78	2·22	2·71	35·63
266		7·41	6·50	44·27	55·73	31·32	1·48	0·05	3·71	1·19	18·25	2·75	1·57	14·42	11·57	2·70	3·24	35·80
407*		7·64	6·32	62·48	37·52	43·57	2·05	0·18	4·78	2·10	21·88	4·42	1·03	10·64	14·26	1·52	1·86	45·14
506*		6·69	6·01	67·27	32·73	37·24	1·75	0·18	4·36	1·76	20·81	3·57	0·89	11·79	12·86	1·84	2·18	41·27
507*		6·46	5·85	61·99	38·01	37·15	1·75	0·22	4·39	1·50	20·97	3·58	0·99	10·16	12·82	2·51	2·67	38·76
408*		8·10	6·34	54·43	45·57	37·81	1·78	0·28	4·62	1·72	21·94	3·85	1·76	11·50	12·77	1·36	1·36	42·07
409*		7·62	6·11	56·47	43·53	39·78	1·87	0·01	4·25	1·62	19·94	3·66	0·58	12·47	13·49	1·02	2·02	43·03
569*		7·29	6·13	58·10	41·90	38·84	1·83	0·35	4·32	1·38	21·66	2·96	1·43	13·48	11·76	1·01	1·35	37·92
570*		6·70	6·11	59·91	40·09	38·59	1·82	0·31	4·43	1·52	22·25	3·01	1·18	11·45	12·13	1·34	2·02	40·24
TERAI																		
228	C	7·15	5·67	59·77	40·23	36·09	1·70	0·01	4·59	1·77	22·38	3·51	1·00	10·53	12·88	2·83	3·50	39·3 1

TABLE I (d)—*Chemical Composition of Black Tea—Fannings—(Concluded.)*

Month of manufacture : November–December, 1956-1957—(*contd.*)

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DARJEELING																		
219	C	6·76	5·72	53·76	46·24	35·12	1·65	0·27	4·08	1·57	20·25	2·92	1·28	13·53	13·48	2·02	4·56	37·77
190	C	7·44	5·72	55·27	44·73	34·01	1·60	0·15	4·13	1·56	21·19	2·56	1·86	13·89	9·92	2·84	4·32	39·13
395*		8·20	5·78	62·08	37·82	34·32	1·62	0·41	4·34	1·46	21·56	3·08	1·39	13·76	14·73	2·04	2·21	37·91
542*		7·02	5·44	62·59	37·41	37·64	1·77	0·17	3·88	1·27	18·91	2·96	1·41	13·45	11·68	2·18	4·03	36·46
Average ..			6·10	59·43	40·57	39·40	1·74	0·26	4·23	1·50	20·66	3·22	1·25	12·67	11·85	2·02	2·95	39·22
Average of all Seasons ..			6·02	60·20	39·80	36·70	1·69	0·30	4·75	1·88	22·75	3·82	1·09	11·93	12·55	1·67	2·53	40·47

* 1956 Crop.

TABLE I (e)—*Chemical Composition of Black Tea—Dust I.*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
39		6·82	5·85	69·61	30·39	34·93	1·64	0·47	5·31	2·23	23·68	4·99	0·75	10·24	14·42	0·87	1·34	43·88
217*		8·88	6·18	60·52	39·48	32·93	1·57	0·45	5·49	2·22	26·50	4·34	1·06	10·31	15·10	1·37	2·05	35·06
CACHAR																		
58		7·66	7·05	51·26	48·74	35·46	1·67	1·13	5·14	2·06	25·13	3·88	0·74	10·38	19·57	0·95	1·89	37·69
175*		6·69	7·70	57·20	42·80	33·59	1·58	1·96	5·49	2·01	27·44	3·82	1·16	10·07	13·43	0·93	1·88	37·30
207*		8·07	6·61	54·59	45·41	36·79	1·73	0·42	5·35	2·09	26·38	3·90	1·35	11·34	13·05	2·37	3·39	34·49
206*		8·64	6·38	58·44	41·56	46·25	1·90	0·27	5·11	2·39	25·25	3·99	1·45	12·05	14·28	2·05	3·42	34·06
208*		7·69	6·65	49·35	50·65	32·77	1·54	0·80	5·20	1·82	26·19	3·50	1·18	10·10	12·99	1·69	2·03	34·83
DOOARS																		
23		7·64	6·21	48·24	51·76	31·85	1·50	0·84	4·55	1·88	20·98	4·13	0·40	9·49	12·88	1·49	3·25	41·89
3		6·04	5·43	49·24	50·76	32·90	1·55	0·23	4·51	1·75	21·84	3·52	1·08	9·96	11·55	2·53	2·93	40·90
30		7·37	5·91	52·97	47·03	32·78	1·54	0·81	4·48	1·95	20·15	4·35	0·65	10·96	15·19	1·01	1·89	43·29
21		8·74	5·88	46·40	53·60	25·83	1·11	1·13	4·99	2·50	21·23	5·52	0·39	8·50	14·88	1·51	2·19	44·10
192*		6·82	6·56	58·82	41·18	40·03	1·89	0·64	5·88	2·59	28·06	4·83	1·22	8·89	15·82	2·82	5·23	41·66
190*		7·34	6·94	57·73	42·27	42·09	1·98	0·82	5·66	2·20	27·31	4·47	1·30	10·50	13·46	2·96	3·37	39·87
124*		7·22	6·32	56·14	43·86	36·96	1·74	0·40	5·84	2·36	27·66	4·80	0·69	8·89	13·00	2·16	4·32	40·80
35		8·06	5·91	57·50	42·50	34·18	1·60	0·77	5·31	2·22	27·47	4·78	0·65	9·07	15·08	0·82	1·09	44·43
DARJEELING																		
221*		8·00	7·20	51·72	48·28	32·61	1·19	1·54	5·50	1·86	26·69	4·27	0·99	10·80	16·50	1·27	1·87	39·54
Average ..			6·42	54·86	45·14	34·75	1·57	0·77	5·23	2·13	25·12	4·32	0·94	9·97	14·45	1·67	2·63	39·48

TABLE I (e)—*Chemical Composition of Black Tea—Dust I.—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
146	CTC	8·11	6·08	60·54	39·46	36·46	1·71	0·23	4·85	1·96	22·97	4·07	0·89	10·72	13·47	1·50	3·27	40·38
326*		6·76	5·25	58·81	41·19	31·09	1·48	0·01	4·77	2·21	21·56	4·56	0·55	9·20	16·03	1·34	2·26	43·78
235*		8·99	5·58	66·49	39·51	32·98	1·55	0·44	5·42	2·92	24·00	5·48	0·78	10·44	20·01	1·72	3·09	41·71
330*		7·76	5·77	52·88	47·12	37·21	1·77	0·01	4·75	2·10	21·94	4·29	0·93	12·01	15·05	1·44	2·03	43·91
124	C	6·24	6·38	61·94	38·06	29·01	1·36	1·09	5·16	1·92	24·67	4·20	0·73	9·80	11·02	1·23	1·33	39·68
95	C	8·34	5·89	47·96	52·04	29·73	1·40	1·15	4·86	1·96	22·07	4·61	0·81	9·16	9·42	0·85	1·70	40·49
CACHAR																		
137	Leggcut	7·67	6·88	59·38	40·62	35·31	1·66	0·96	4·44	1·63	21·83	3·28	0·82	10·45	9·53	1·35	1·52	40·72
DOOARS																		
150	C	8·04	5·54	79·38	20·62	44·06	2·07	0·40	4·18	2·07	24·30	4·48	0·71	9·15	13·88	0·95	2·18	41·77
134	Leggcut	7·30	6·17	66·94	33·06	37·61	1·77	0·08	4·94	1·92	24·17	3·71	0·91	9·52	10·23	1·19	1·35	42·99
85	Leggcut	7·08	5·72	57·70	42·30	33·05	1·55	0·17	5·98	2·60	30·34	3·90	0·90	11·41	12·04	1·34	2·01	44·61
120	Leggcut	7·32	6·27	63·40	36·60	37·77	1·78	0·77	4·98	1·92	24·29	3·79	1·26	10·60	9·87	1·21	1·89	37·60
182		8·25	5·43	65·79	34·21	39·24	1·85	0·50	5·10	2·14	24·23	4·24	0·95	10·56	11·81	1·91	3·54	40·05
97		10·01	6·62	56·72	43·28	29·89	1·41	0·56	5·13	2·00	24·23	4·34	0·72	10·20	11·86	0·87	1·39	37·53
355*		8·63	5·79	61·95	38·05	36·94	1·76	0·17	5·32	2·39	25·06	4·53	0·63	9·49	15·52	1·78	2·19	44·66
228*		8·86	5·36	62·56	37·44	32·71	1·54	0·04	5·26	1·95	24·75	4·50	0·69	9·93	15·10	2·23	2·57	46·54
TERAI																		
91	C	9·08	5·90	62·35	37·65	33·11	1·56	0·19	5·24	2·16	25·00	4·30	3·76	10·30	10·24	0·68	1·38	41·02
DARJEELING																		
164	C	8·44	5·76	67·09	32·91	35·51	1·67	0·21	4·16	1·20	21·46	2·52	2·03	13·43	11·44	1·39	1·78	38·34
	Average ..		5·90	62·46	37·54	34·80	1·64	0·40	5·03	2·06	23·93	4·16	1·06	10·37	12·74	1·36	2·12	41·16

TABLE I (e)—*Chemical Composition of Black Tea—Dust I.—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
525*		7·18	6·30	47·69	52·31	31·75	1·50	1·12	4·79	1·94	22·73	4·00	0·71	9·14	13·71	2·35	3·11	41·98
488*		7·34	6·31	60·09	39·91	42·31	1·99	0·18	4·73	1·88	22·13	4·12	1·21	10·54	14·16	1·96	2·22	39·60
576*		5·34	6·67	60·81	39·19	43·31	2·04	0·47	4·42	1·63	21·44	3·43	1·28	10·46	11·04	1·99	3·96	40·57
566*		8·05	6·70	62·44	37·56	39·70	1·87	0·72	4·77	1·72	22·96	3·80	0·71	10·59	14·00	1·09	1·09	41·50
CACHAR																		
260	C	7·02	7·09	59·74	40·26	26·89	1·27	0·02	4·17	1·57	19·94	3·41	1·49	11·05	11·96	3·16	4·04	40·67
200	Leggcut	6·23	6·20	62·08	37·92	36·80	1·73	0·40	3·69	1·43	17·81	2·92	1·67	10·39	9·07	3·16	3·50	40·32
536*		7·78	7·72	56·23	43·77	34·16	1·61	1·55	4·37	1·76	21·50	3·22	1·30	11·41	9·21	2·29	3·05	35·79
625*		7·87	6·43	49·71	50·29	34·73	1·64	1·09	4·02	1·43	19·72	2·99	1·11	12·28	11·67	2·85	2·99	40·36
393*		8·83	5·82	53·33	46·67	29·84	1·46	0·29	4·99	1·84	23·45	4·28	0·81	11·42	13·83	2·74	4·11	42·02
578*		6·59	6·86	44·80	55·20	31·06	2·06	1·65	4·07	1·74	20·17	2·92	1·39	11·27	10·80	2·01	2·68	36·94
DOOARS																		
214	C	7·02	6·17	64·61	35·39	38·18	1·80	0·62	5·28	1·96	25·81	3·99	0·87	10·16	14·35	0·53	0·67	40·56
262	Leggcut	7·33	5·84	50·34	49·66	37·51	1·77	0·06	4·18	1·34	20·63	3·05	1·47	10·71	11·55	2·02	2·43	39·33
203	Leggcut	5·93	5·77	60·99	39·01	36·67	1·72	0·33	4·32	1·66	20·63	3·55	1·97	11·21	10·01	1·83	3·17	39·77
255	Leggcut	7·25	6·07	64·74	35·26	41·69	1·96	0·02	4·24	1·34	21·00	3·06	1·07	11·89	10·65	2·52	3·03	37·96
412*		8·26	6·05	59·05	40·95	39·52	1·86	0·22	4·33	1·78	20·00	3·91	0·68	10·43	17·84	2·05	2·73	42·69
572*		7·30	6·10	56·24	43·76	38·29	1·80	0·39	4·39	1·46	21·91	3·07	1·12	10·96	11·32	1·35	1·35	41·00
505*		9·03	5·39	69·59	30·41	35·61	1·68	0·18	4·92	1·85	23·81	3·85	0·76	9·48	15·30	1·72	2·06	43·80
406*		8·53	6·99	52·67	47·33	43·74	2·06	1·30	5·68	2·21	26·81	4·81	0·92	9·94	14·58	1·03	1·45	42·32

TABLE I (c)—*Chemical Composition of Black Tea—Dust I.—(Concluded.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DARJEELING																		
396*		8·57	6·02	53·48	46·52	37·20	1·75	0·54	4·51	1·51	22·19	3·32	1·40	12·73	14·02	1·54	1·79	35·23
544*		7·96	6·21	54·27	45·73	37·76	1·78	0·71	4·22	1·35	20·65	3·17	1·13	12·27	11·80	2·21	4·89	38·29
Average :			6·34	57·15	42·85	36·84	1·74	0·59	4·50	1·67	21·76	3·54	1·15	10·91	12·54	2·02	2·72	39·94
Average of all Seasons :			6·22	58·16	41·84	35·55	1·65	0·50	4·89	1·03	23·47	3·98	1·06	10·66	13·18	1·70	2·50	41·19

* 1956 Crop.

TABLE I (f)—*Chemical Composition of Black Tea—Dust II.*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
69	CTC	8·11	5·40	69·46	30·54	32·10	1·51	0·35	4·89	2·02	22·54	4·45	0·53	11·65	14·78	0·82	1·90	43·15
44	C	7·69	6·12	66·19	33·81	27·96	1·31	0·48	5·55	2·12	26·14	4·36	0·74	10·76	14·36	1·08	2·17	41·60
17	C	8·54	6·33	54·59	45·41	33·62	1·58	0·33	5·26	2·38	25·54	4·07	0·60	10·03	13·31	1·52	1·71	43·89
73	C	9·03	5·44	54·65	45·35	28·42	1·34	0·65	4·99	2·16	22·05	4·51	0·55	9·51	14·78	0·69	1·65	42·10
78	C	6·36	5·73	69·02	30·98	32·51	1·53	0·16	5·46	2·26	25·98	4·51	0·94	12·00	12·17	2·17	2·67	39·88
49	CTC	6·80	6·44	55·83	44·17	28·01	1·32	1·02	5·81	2·49	26·79	5·28	0·59	9·10	15·28	2·01	3·12	43·67
63	C	5·86	5·92	67·74	32·26	33·56	1·58	0·46	5·41	2·21	25·25	4·74	0·94	10·34	13·42	0·80	2·12	42·54
220*		6·84	6·22	55·49	44·51	27·38	1·29	1·07	5·17	2·16	24·00	4·60	0·54	9·88	17·44	1·17	2·35	41·58
CACHAR																		
27	C	7·50	5·69	51·13	48·87	32·05	1·51	0·76	4·88	2·05	22·43	4·48	1·22	9·57	12·48	1·35	2·16	37·95
59	Leggcut	7·72	6·50	69·11	30·89	34·04	1·60	1·04	5·29	2·08	25·80	4·02	0·72	10·56	9·92	0·81	1·08	38·81
209*		7·57	6·98	49·44	50·56	36·79	1·73	0·42	5·19	1·80	28·00	3·58	1·36	11·70	14·51	2·02	2·98	34·09
DOOARS																		
54	C	6·71	5·72	57·72	42·28	26·81	1·26	0·25	5·37	2·45	23·79	5·37	1·41	9·57	15·57	0·67	1·34	43·52
24	Leggcut	8·62	7·05	46·41	53·59	32·83	1·54	1·01	4·79	1·97	22·32	4·22	0·37	10·15	13·32	1·37	2·74	43·98
4	Leggcut	6·43.	5·86	60·44	39·56	28·45	1·34	0·33	4·62	1·92	22·37	3·61	0·90	10·74	11·61	1·60	2·40	41·45
31	Leggcut	6·22	6·63	51·88	48·12	31·99	1·50	0·82	4·56	1·94	22·46	4·38	1·15	11·53	14·11	1·74	2·93	44·63
193*		7·20	6·75	65·96	34·04	40·96	1·92	0·99	5·86	2·41	27·44	5·09	1·05	10·38	14·66	2·94	5·21	42·25
188*		7·30	7·22	47·37	52·63	34·22	1·61	1·47	5·65	2·22	27·88	4·14	0·97	9·27	12·59	1·27	2·43	37·44

TABLE I (f)—*Chemical Composition of Black Tea—Dust II—(contd.)*

Month of manufacture : April–May, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TERAI																		
9	C	7·24	6·27	48·24	51·76	26·63	1·25	1·38	5·43	2·24	24·51	4·88	0·74	7·62	13·74	1·28	1·48	43·71
DARJEELING																		
13	C	6·15	7·32	46·61	53·39	27·85	1·31	0·95	4·94	1·95	23·54	4·07	1·15	9·57	9·79	1·33	2·13	41·40
222*		7·90	7·42	51·13	48·87	32·29	1·52	1·22	5·03	1·90	24·00	4·13	0·65	10·00	15·32	1·25	1·34	41·67
	Average ..		6·35	56·92	43·08	31·43	1·47	0·76	5·21	2·14	24·64	4·37	0·86	10·24	13·66	1·39	2·25	41·46

TABLE I (f)—*Chemical Composition of Balck Tea—Dust II—(contd.)*

Month of manufacture : August, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of totel ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extra t %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
111	C	9·69	6·60	55·12	44·88	31·01	1·46	1·19	5·18	2·17	24·07	4·60	0·66	13·36	11·44	1·11	2·08	42·58
158	C	6·18	5·63	68·10	31·90	31·45	1·48	0·34	4·91	1·83	24·48	3·44	1·32	9·64	14·43	1·20	2·40	44·51
131	C	8·68	6·21	59·49	40·51	27·96	1·31	0·83	4·67	2·08	24·26	2·73	0·87	10·26	13·53	1·21	1·37	40·24
327*		7·58	5·17	57·35	42·65	30·13	1·44	0·02	4·96	2·19	22·63	4·64	0·65	9·76	13·48	1·52	2·37	45·71
162	C	7·73	6·44	61·68	38·32	35·23	1·66	0 33	5·03	2·00	24·06	4·09	1·51	10·99	12·15	1·36	2·17	44·28
116	CTC	6·64	6·17	67·22	32·78	37·94	1·77	0·49	5·13	2·12	23·96	4·49	0·91	10·76	9 80	1·34	2·41	41·18
CACHAR																		
154	C	7·73	5·69	62·08	37·92	29·34	1·38	0·30	4·54	1·65	21·59	3·76	2·33	10·91	11·73	1·76	2·43	36·97
360*		8·02	6·65	47·92	52·08	35·06	1·67	0·94	4·40	1·41	21·50	3·22	1·45	12·27	13·30	2·45	2·99	39·13
DOOARS																		
141	C	7·11	6·02	57·15	42·85	38·22	1·80	0·08	4·81	2·05	22·35	4·28	0·64	10·40	12·07	1·62	3·23	40·70
135	Leggcut	7·37	6·24	62·59	37·41	33·27	1·56	0·31	4·94	1·92	23·92	3·86	0·97	9·99	9·87	1·19	1·40	42·28
86	Leggcut	8·71	4·93	68·04	31·96	33·36	1·58	0·27	5·78	2·56	22·28	4·35	0·96	10·76	11·86	1·24	2·74	42·52
121	Leggcut	7·31	6·35	58·97	41·03	32·91	1·55	0·84	4·73	1·83	23·19	3·53	0·65	10·91	10·04	1·21	1·62	41·38
98		9·76	7·25	45·44	54·56	29·36	1·38	1·72	5·02	2·06	23·26	4·50	1·11	10·77	10·32	0·87	1·73	39·77
314*		7·44	5·84	67·90	32·10	31·70	1·51	0·21	5·26	2·03	25·06	4·34	0·70	9·40	13·91	0·65	0·97	42·58
354*		7·82	6·02	55·22	44·78	36·07	1·72	0·68	5·13	2·36	23·69	4·65	0·72	10·35	15·69	1·76	2·17	46·62
226*		6·93	6·31	52·18	47·82	30·09	1·42	0·63	5·13	2·14	24·06	4·51	0·67	9·48	17·45	1·68	3·02	41·93
DARJEELING																		
107	C	8·94	6·17	65·92	34·08	35·70	1·68	0·81	4·91	1·76	23·94	3·74	1·11	12·33	12·27	1·24	2·75	42·84
103	C	7·07	6·26	55·47	44·53	31·86	1·50	0·48	4·75	1·70	23·21	3·59	1·11	10·49	11·30	0·67	1·68	39·82
	Average ..		6·11	59·32	40·68	33·35	1·55	0·58	5·51	1·99	23·74	4·02	1·05	10·71	12·48	1·34	2·20	41·95

TABLE I (f)—*Chemical Composition of Black Tea—Dust II—(contd.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
252	CTC	7·76	5·78	56·42	45·58	36·33	1·71	0·02	3·92	1·32	19·50	2·76	0·98	11·86	11·39	2·88	3·39	39·19
233	C	7·36	6·38	55·83	44·17	33·74	1·59	0·79	3·91	1·62	19·94	3·06	0·96	11·63	14·89	2·16	2·97	39·94
242	C	7·49	5·96	54·60	45·40	24·88	1·14	0·43	3·76	1·30	18·44	2·82	1·16	11·19	11·69	2·22	3·01	40·27
209	C	7·21	6·20	61·27	38·73	36·64	1·72	0·42	4·79	1·70	23·38	3·65	0·86	11·73	14·21	0·84	1·52	39·93
247	C	7·32	6·58	55·24	44·76	37·65	1·77	0·66	4·32	1·32	21·44	3·08	0·94	12·48	11·42	2·00	3·24	37·44
224	CTC	5·71	6·64	55·27	44·73	34·21	1·61	0·40	4·77	1·68	23·06	3·75	1·02	9·34	13·32	2·00	4·24	42·41
186	C	6·55	6·95	56·84	43·16	38·26	1·80	0·98	4·85	2·23	23·81	3·59	1·03	10·61	12·48	2·28	3·98	39·77
524*		7·40	6·09	56·96	43·04	32·68	1·54	0·75	4·81	1·97	22·96	3·94	0·82	10·40	14·27	1·94	2·87	41·04
CACHAR																		
199	Leggcut	6·40	6·23	63·03	36·97	36·33	1·71	0·34	3·95	1·54	19·38	2·95	1·50	11·19	9·08	3·00	3·17	39·03
577*		7·20	7·31	40·77	59·23	38·25	1·80	1·86	4·00	1·70	19·54	3·03	1·45	12·21	10·01	1·68	2·70	38·48
391*		9·04	5·61	52·56	47·44	32·51	1·53	1·29	4·55	1·65	21·50	3·85	1·13	12·62	12·01	2·94	5·47	36·28
DOOARS																		
237	C	6·73	6·28	61·07	38·93	23·96	1·12	0·30	3·96	1·35	19·19	3·08	1·25	11·16	11·92	2·31	2·90	40·61
263	Leggcut	7·68	5·97	52·31	47·69	32·70	1·54	0·04	4·06	1·32	19·81	3·09	1·63	10·60	12·04	1·90	2·22	38·39
204	Leggcut	6·04	6·39	59·48	40·52	37·78	1·78	0·66	4·09	1·94	18·81	3·77	2·08	14·07	10·11	2·16	2·99	40·47
256	Leggcut	7·09	6·42	56·49	43·51	41·72	1·97	0·05	3·83	1·34	18·69	2·91	1·02	13·79	11·28	2·24	3·02	38·61
196	C	6·75	5·93	61·79	38·21	33·78	1·59	0·20	4·48	1·76	21·69	3·50	1·00	12·12	8·76	3·02	3·85	39·07
403		8·80	6·47	60·59	39·41	42·22	1·99	0·37	5·75	2·01	26·81	5·05	0·82	10·55	13·27	1·20	1·71	39·91
411		7·96	6·75	50·91	49·09	36·94	1·74	0·80	4·40	1·72	20·13	4·09	0·76	9·96	17·01	2·04	2·72	45·36
571		7·10	6·82	52·54	47·46	37·14	1·75	0·95	4·40	1·55	21·91	3·21	1·12	10·56	12·17	0·68	0·68	41·23

TABLE I (f)—*Chemical Composition of Black Tea—Dust II—(Concluded.)*

Month of manufacture : November–December, 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
TERAI																		
229		7·87	6·23	57·66	42·34	36·91	1·74	0·29	5·27	2·11	25·31	4·22	1·00	9·59	12·98	2·58	2·99	40·42
DARJEELING																		
220	C	6·76	6·32	53·40	46·60	34·86	1·64	0·92	4·80	1·53	23·81	3·42	1·04	10·62	14·14	1·61	3·49	39·28
191	C	7·32	5·97	47·57	52·43	32·91	1·55	0·90	4·21	1·77	21·25	2·79	1·62	13·02	9·52	2·68	4·01	37·65
394*		8·57	5·71	61·26	38·74	38·84	1·83	0·36	4·47	1·53	21·88	3·35	1·38	12·64	16·35	1·71	1·88	36·76
545*		7·74	7·02	49·64	50·36	38·76	1·83	1·76	4·14	1·15	20·21	3·14	1·16	12·21	13·52	2·03	3·52	37·94
Average ..			6·33	55·56	44·44	35·42	1·67	0·65	4·40	1·63	21·35	3·42	1·16	11·50	12·40	2·08	3·02	39·56
Average of all Seasons ..			6·27	57·09	42·91	33·53	1·57	0·66	4·97	1·90	23·11	3·90	1·03	10·87	12·83	1·64	2·55	40·86

* 1956 Crop.

TABLE I (g)—*Chemical Composition of Black Tea—Broken Tea*

Month of manufacture : April–May, 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 3·464	Caffeine % Caffeine N. × 6·25	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
45	C	8·23	6·31	73·00	27·00	35·46	1·67	0·32	4·88	1·36	24·32	3·43	0·97	14·62	12·73	1·09	1·63	39·88
74	C	8·84	6·36	64·91	35·09	44·12	2·07	0·14	3·81	1·65	18·18	3·12	0·78	16·19	12·41	0·69	1·37	42·53
40	C	6·87	7·22	68·38	31·62	47·30	2·22	0·47	4·51	1·84	19·67	4·45	1·01	12·88	10·60	0·67	1·07	41·44
79	C	7·49	6·37	68·17	31·83	34·47	1·62	0·17	5·65	2·70	28·09	4·00	1·19	10·28	10·77	2·36	2·70	42·28
50	CTC	7·22	6·61	65·85	34·15	45·37	2·13	0·29	4·60	2·28	20·13	4·78	0·58	10·34	13·61	2·70	3·70	42·93
64	C	7·21	6·06	68·26	31·74	44·35	2·08	0·13	4·22	1·98	20·37	3·33	0·99	15·08	10·54	1·21	1·89	41·60
DOOARS																		
55	C	4·89	5·89	60·89	39·11	31·19	1·47	0·61	4·59	2·08	20·64	4·44	1·44	13·14	15·61	0·79	1·31	42·07
5	Leggcut	6·58	5·95	52·77	47·23	34·42	1·62	0·37	4·20	1·92	18·96	4·04	1·12	14·01	12·01	2·28	2·68	46·00
	Average ..		6·35	65·28	34·72	39·59	1·86	0·31	4·56	1·98	21·30	3·95	1·01	13·32	12·29	1·47	2·04	42·34

TABLE I (g)—*Chemical Composition of Black Tea—Broken Tea—(contd.)*

Month of manufacture : August, 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
112	C	9·84	6·77	61·01	38·99	39·38	1·86	0·51	4·35	1·77	20·64	3·46	0·82	13·14	8·83	1·46	3·05	41·81
132	C	8·36	6·16	67·02	32·98	35·38	1·66	0·16	4·66	1·86	23·32	2·97	1·08	10·80	11·27	1·26	1·36	40·16
125	C	6·33	6·18	61·14	38·86	37·26	1·75	0·20	4·47	1·69	27·21	3·18	1·18	14·31	10·49	1·12	1·34	39·91
163	C	8·36	6·63	65·34	34·66	38·19	1·80	0·21	4·18	1·75	25·49	3·16	1·87	15·81	11·42	1·62	2·46	39·16
117	CTC	7·22	6·02	72·54	27·46	36·64	1·73	0·76	4·45	1·83	26·11	3·73	1·08	13·29	10·40	1·35	2·02	39·12
96	C	10·20	6·99	59·03	40·97	45·21	2·12	0·52	4·37	1·89	25·96	3·54	0·97	13·71	10·75	0·73	1·39	39·64
DOOARS																		
151	C	8·91	6·26	60·00	40·00	37·88	1·78	0·09	4·40	2·01	25·72	3·78	0·80	14·80	14·01	0·96	2·20	42·16
142	C	7·81	5·83	59·60	40·40	38·50	1·81	0·66	4·49	1·79	26·27	3·78	0·65	14·73	11·32	1·49	3·25	40·14
87	Leggcut	6·96	6·04	68·04	31·96	37·40	1·76	0·35	4·84	2·31	29·05	3·13	0·89	9·93	12·03	1·31	2·70	38·07
122	Leggcut	6·72	6·44	65·98	34·02	38·06	1·79	0·74	4·27	1·76	25·45	3·14	1·10	13·71	8·90	1·14	1·34	36·93
	Average ..		6·33	63·97	36·03	38·39	1·81	0·42	4·45	1·87	25·52	3·39	1·04	13·42	10·94	1·24	2·11	39·71

TABLE I (g)—*Chemical Composition of Black Tea—Broken Tea—(Concluded.)*

Month of manufacture : November–December, 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3.464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
243	C	7·84	5·84	62·65	36·35	37·97	1·78	0·44	3·12	1·34	15·06	2·47	1·37	15·83	11·90	2·44	3·47	41·23
210	C	7·35	6·28	61·91	38·09	44·26	2·08	0·14	4·00	1·59	19·69	2·96	1·04	15·10	12·75	1·52	1·86	39·18
248	C	6·91	6·42	59·37	40·63	37·60	1·77	0·34	4·66	1·42	23·44	3·15	1·07	14·27	10·45	2·09	2·30	37·96
225	CTC	5·39	6·99	68·24	31·76	47·30	2·23	0·04	3·48	1·57	16·56	2·86	1·06	14·76	12·80	1·99	3·70	41·86
187	C	7·64	6·57	67·28	32·62	42·77	2·01	0·26	4·75	2·30	23·75	3·28	1·04	15·30	11·08	2·01	4·61	38·71
DOOARS																		
215	C	6·62	6·46	65·92	34·08	37·48	1·76	0·44	3·33	1·86	15·31	3·06	1·09	14·39	11·81	0·84	1·00	40·92
238	C	6·67	5·50	69·04	30·96	32·15	1·52	0·06	3·72	1·37	17·94	2·94	1·14	14·23	10·52	1·82	2·68	39·02
205	Leggcut	7·29	6·66	62·21	37·79	43·69	2·05	0·22	3·98	1·63	19·00	3·25	0·98	15·15	13·40	0·84	1·01	41·53
257	Leggcut	6·89	6·63	61·34	38·66	39·21	1·85	0·03	3·70	1·31	17·88	2·92	1·02	14·97	10·59	2·23	3·01	37·75
267	C	7·51	6·64	59·61	40·39	40·00	1·88	0·03	3·64	1·08	17·75	2·78	1·31	20·16	10·01	2·03	2·16	38·26
	Average ..		6·34	63·87	36·13	40·24	1·89	0·20	3·84	1·55	18·64	2·97	1·11	16·42	11·53	1·78	2·58	39·64
Average of all Seasons ..			6·36	64·31	35·69	39·39	1·85	0·31	4·26	1·78	20·79	3·40	1·06	14·11	11·54	1·50	2·26	40·43

TABLE II

MAXIMUM, MINIMUM & AVERAGE VALUES OF DIFFERENT GRADES OF TEA

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
								Large Pekoe (16)										
	Maximum		6·82	64·90	52·41	46·66	2·06	0·68	6·38	2·22	23·74	5·22	2·28	15·93	16·41	2·90	4·76	42·87
	Minimum		5·23	47·59	35·10	26·76	1·26	0·08	4·10	1·59	19·91	2·73	0·37	9·57	8·25	0·67	1·33	33·88
	Average	..	5·89	57·72	42·28	36·00	1·70	0·26	4·59	1·94	22·50	3·44	1·20	12·81	11·77	1·88	2·74	39·10
								Small Pekoe (59)										
	Maximum		7·03	75·02	47·60	49·86	2·17	0·94	5·79	2·69	30·11	4·88	2·22	18·13	15·96	3·50	5·38	45·76
	Minimum		5·21	52·40	24·98	24·14	1·39	0·01	3·42	1·18	16·56	2·53	0·40	9·48	8·50	1·01	1·01	35·30
	Average	..	6·18	62·14	37·86	37·36	1·75	0·29	4·42	1·91	22·15	3·68	1·08	12·60	12·22	1·69	2·60	40·88
								Broken Orange Pekoe (59)										
	Maximum		7·39	71·17	50·12	48·17	2·11	1·22	5·69	2·62	38·83	5·27	2·28	14·23	15·98	2·96	3·70	45·75
	Minimum		5·19	49·88	28·83	22·22	1·14	0·00	3·72	1·21	16·88	2·58	0·40	9·52	8·88	0·35	0·35	35·29
	Average	..	6·11	60·77	39·22	36·07	1·71	0·35	4·75	1·89	22·67	3·90	1·03	11·80	13·01	1·58	2·46	40·72
								Fannings (115)										
	Maximum		6·77	72·65	55·73	46·34	2·18	1·12	6·23	2·97	30·72	5·47	2·07	20·72	17·18	2·98	5·27	45·81
	Minimum		5·16	44·27	27·35	24·02	1·13	0·01	3·48	1·12	16·56	2·54	0·35	8·28	8·16	0·67	0·67	35·63
	Average	..	6·02	60·20	39·80	37·70	1·69	0·30	4·75	1·88	22·75	3·82	1·09	11·93	12·55	1·67	2·53	40·47
								Dust-I (53)										
	Maximum		7·70	79·38	55·20	44·06	2·07	1·96	5·98	2·60	30·34	5·52	3·76	13·43	20·01	3·16	5·23	46·52
	Minimum		5·25	44·80	20·62	25·83	1·11	0·01	3·69	1·20	17·81	2·52	0·39	8·50	9·07	0·53	0·67	34·06
	Average	..	6·22	58·16	41·84	35·55	1·65	0·59	4·89	1·93	23·47	3·98	1·06	10·46	13·18	1·70	2·50	41·19

TABLE II—(*contd.*)

MAXIMUM, MINIMUM & AVERAGE VALUES OF DIFFERENT GRADES OF TEA

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
							Dust-II (62)											
Maximum			7·42	69·46	54·56	42·22	1·99	1·86	5·86	2·56	28·28	5·37	2·33	14·07	17·45	3·02	5·47	46·62
Minimum			4·93	45·44	30·54	23·96	1·12	0·02	3·76	1·30	18·44	2·73	0·37	7·62	8·76	0·65	1·08	36·76
Average	..		6·27	57·09	42·91	33·53	1·57	0·66	4·97	1·90	23·11	3·90	1·03	10·87	12·83	1·64	2·55	40·86
							Broken Tea (28)											
Maximum			7·22	73·00	47·23	47·30	2·23	0·76	5·65	2·70	29·05	4·78	1·87	20·16	15·61	2·70	2·70	46·00
Minimum			5·50	52·77	27·00	31·19	1·47	0·03	3·12	1·08	15·06	2·47	0·58	9·93	8·83	0·67	0·67	36·93
Average	..		6·36	64·31	35·69	39·39	1·85	0·31	4·26	1·78	20·79	3·40	1·06	14·11	11·54	1·50	2·26	40·43
							Average of all samples (392)											
Maximum			7·70	79·38	55·73	49·87	2·35	1·96	6·38	2·97	33·74	5·52	3·76	20·72	20·01	3·50	5·47	46·62
Minimum			4·93	44·27	20·62	22·22	1·11	0·01	3·12	1·08	15·06	2·47	0·35	7·62	8·16	0·35	0·35	38·88
Average	..		6·16	60·24	39·76	35·65	1·67	0·41	4·71	1·85	22·85	3·80	1·06	11·83	12·61	1·63	2·51	40·59
							Average of all North & South Indian Samples (916)											
Maximum			12·05	79·38	77·18	55·40	2·61	5·78	6·44	3·14	35·56	5·52	3·76	20·72	21·04	5·74	7·71	47·50
Minimum			4·23	22·82	20·62	22·22	1·05	0·01	3·12	1·05	13·36	2·12	0·35	7·48	7·48	0·35	0·35	32·12
Average	..		6·07	58·68	41·32	36·30	1·70	0·42	4·58	1·76	22·60	3·51	1·02	11·78	11·78	1·97	2·93	40·30

TABLE III

SEASONAL AND GRADE VARIATIONS IN SOME ANALYTICAL DATA OF BLACK TEA

Grade	Quarter	No. of samples	Water Extract %	Tannins %	Caffeine %	Crude Fibre %	Water sol. ash as % of total ash	Alkalinity K_2O 100g.
LARGE PEKOE	April	3	40 54	10·96	3·66	10·77	53·17	1·54
	Aug.	7	39·58	12·28	3·77	13·02	61·20	1·83
	Dec.	6	37·79	10·84	3·22	13·96	58·57	1·78
Average ..		16	39·10	11·77	3·44	12·81	57·72	1·70
SMALL PEKOE	April	18	43·28	13·31	4·20	12·53	62·43	1·68
	Aug.	22	39·44	12·05	3·68	12·50	65·19	1·96
	Dec.	19	39·67	12·25	3·17	13·18	60·51	1·79
Average ..		59	40·88	12·22	3·68	12·60	62·14	1·75
BROKEN ORANGE PEKOE	April	15	41·88	13·61	4·32	10·89	58·43	1·62
	Aug.	23	40·84	12·74	4·05	11·96	62·42	1·67
	Dec.	21	39·69	12·73	3·36	12·28	60·79	1·81
Average ..		59	40·72	13·01	8·90	11·80	60·77	1·71
FANNINGS	April	35	40·63	13·39	4·29	11·54	58·73	1·65
	Aug.	38	41·87	12·16	4·07	11·39	62·69	1·72
	Dec.	42	39·22	11·85	3·22	12·67	59·43	1·74
Average ..		115	40·47	12·55	3·82	11·93	60·20	1·69
DUST I	April	16	39·48	14·45	4·32	9·97	54·86	1·57
	Aug.	17	41·16	12·74	4·16	10·37	62·46	1·67
	Dec.	20	39·94	12·54	3·54	10·91	57·15	1·74
Average ..		53	40·19	13·18	3·98	10·46	58·16	1·65
DUST II	April	20	41·46	13·66	4·37	10·24	56·92	1·47
	Aug.	18	41·95	12·48	4 02	10·71	59·32	1·55
	Dec.	24	39·56	12·40	3·42	11·50	55·56	1·67
Average ..		62	40·86	12·83	3·90	10·87	57·09	1·57
BROKEN TEA	April	8	42·34	12·29	3·95	13·32	65·28	1·86
	Aug.	10	39·71	10·94	3·39	13·42	63·97	1·81
	Dec.	10	39·64	11·53	2·97	15·42	63·87	1·89
Average ..		28	40·42	11·54	3·40	14·11	64·31	1·85
Average of all the samples in all grades		392	40·49	12·61	3·80	11·83	60·24	1·67

TABLE IV

SUMMARY OF THE SEASONAL VARIATION AND CHEMICAL COMPOSITION OF SOME CONSTITUENTS OF INDIAN BLACK TEA

Chemical constituents	South India (524 Samples)				North India (392 Samples)				North & South India (916 Samples)		
	Seasonal variations	Max. %	Average %	Min. %	Seasonal variations	Max. %	Average %	Min. %	Max. %	Average %	Min. %
Caffeine	High in April Low in July and October	5·10	3·30	2·12	High in April Low in July and December	5·52	3·80	2·47	5·52	3·51	2·12
Tannins	High in April Low in January and October	21·04	13·13	7·75	High in April Low in December	20·01	12·61	8·16	21·04	12·91	7·75
Water extract	High in January and April Low in July and October	47·50	40·13	32·12	High in April Low in December	46·62	40·47	33·88	47·50	40·30	32·12
Crude fibre	High in July and October Low in January and April	16·58	11·75	7·48	High in Dcember Low in April	20·72	11·83	7·62	20·72	11·78	7·48
Alkalinity as K_2 0/100 gms.	High in October Low in April and July	2·61	1·70	1·05	High in December Low in April	2·35	1·69	1·11	2·61	1·79	1·05
Water soluble ash	High in July Low in January	72·97	57·72	22·82	High in August Low in December	79·38	60·24	44·27	79·38	58·80	22·82

TABLE V

SUMMARY OF CHEMICAL DATA ON INDIAN BLACK TEA

Constituents.	Values obtained for S.* Indian Tea (524 sample)			Values obtained for N.* Indian Tea (392 samples)			Values for Indian Tea (916 samples)			Specification as per Act.	Proposed Specification.
	Max. %	Average %	Min. %	Max. %	Average %	Min. %	Max. %	Average %	Min. %		
Total ash ..	12·05	6·02	4·23	7·72	6·16	4·93	12·05	6·07	4·93	5—8%	5—8%
Water Soluble ash	72·97	57·72	22·82	79·38	60·00	44·27	79·38	58·80	22·85	Not less than 40%	Not less than 50%
Acid insoluble ash	5·78	0·42	0·01	1·96	0·41	0·01	5·78	0·42	0·01	Not more than 1%	Not more than 1%
Alkalinity of ash as K_2O ..	2·61	1·70	1·05	2·35	1·69	1·11	2·23	1·69	1·05	1·3 to 2·0%	1·3 to 2·2%
Water extract ..	47·50	40·13	32·12	46·62	40·54	38·88	47·50	40·28	32·12	Not less than 35%	Not less than 35%
Crude fibre ..	16·58	11·75	7·48	20·72	11·33	7·62	20·72	11·78	7·40	Not more than 15%	Not more than 15%
Caffeine ..	5·10	3·30	2·12	5·52	3·80	2·47	5·10	3·51	2·12	....	Not less than 2·5%
Tannins ..	21·04	13·13	7·75	20·01	12·61	8·16	21·04	12·91	7·75	....	Not less than 9·0%

* N—North
* S—South

TABLE VI

SPREAD OF VALUES FOR VARIOUS CHEMICAL CONSTITUENTS IN INDIAN TEA

Chemical constituents.	Range of values	South Indian Tea	North Indian Tea	Green Tea	Stalky Tea	*S. Indian Black Tea	*N. Indian Black Tea	% of samples of *N. *S. combined Black Tea
	No. of samples analysed.	524	392	58	64	Number of samples.	Number of samples.	
1	2	3	4	5	6	7	8	9
Moisture	4— 4·9	0·2	1·3	1·7	—	1	5	0·7
	5— 5·9	7·6	5·2	24·1	—	40	20	6·6
	6— 6·9	33·4	24·2	34·5	17·2	175	93	29·2
	7— 7·9	34·0	44·3	29·3	46·9	178	170	38·3
	8— 8·9	16·8	20·1	10·4	28·1	88	77	18·3
	9— 9·9	8·0	4·2	—	7·8	42	16	6·5
	10—10·2	—	0·7	—	—	—	3	0·4
Tannins	Below 8	—	—	—	20·3	—	—	—
	8— 8·9	1·1	1·8	—	9·4	6	4	1·1
	9— 9·9	7·3	5·2	—	10·9	38	20	6·4
	10—10·9	8·4	10·9	1·7	21·9	44	43	9·7
	11—11·9	16·0	20·0	3·4	20·3	83	77	17·6
	12—12·9	18·3	21·0	1·7	10·9	96	81	19·5
	13—13·9	14·9	15·1	15·5	1·6	78	59	15·2
	14—14·9	11·3	12·0	15·5	1·6	59	46	11·5
	15—15·9	9·2	7·5	6·9	—	48	29	8·5
	16 & above	13·5	6·5	53·3	3·1	70	25	10·5

* N—North
* S—South

TABLE VI—(*contd.*)

SPREAD OF VALUES FOR VARIOUS CHEMICAL CONSTITUENTS IN INDIAN TEA

Chemical constituents.	Range of values	South Indian Tea	North Indian Tea	Green Tea	Stalky Tea	*S. Indian Black Tea	*N. Indian Black Tea Number of samples.	% of samples of *S. *N. combined Black Tea
	No. of samples analysed.	524	392	58	64	Number of samples.		
1	2	3	4	5	6	7	8	9
Caffeine	Below 2·5	—	—	1·7	26·6	—	—	—
	2·5—2·9	30·9	10·9	31·0	4·7	162	42	22·5
	3·0—3·4	36·1	22·9	62·1	23·4	189	88	30·5
	3·5—3·9	23·2	22·9	5·2	37·5	122	88	23·1
	4·0—4·4	7·3	26·3	—	7·8	38	101	15·3
	4·5 & above	2·5	17·0	—	—	13	65	8·6
Water Extract	Below 35	3·8	1·8	1·7	9·4	20	7	3·0
	35—39	46·6	30·7	44·8	50·0	244	118	39·9
	40—44	44·5	61·0	50·0	40·6	233	234	51·4
	45 & above	5·1	6·5	3·5	—	27	25	5·7
Crude Fibre	Below 10	10·5	12·0	3·5	—	55	46	11·1
	10—10·9	23·4	24·0	5·2	3·1	123	92	23·7
	11—11·9	25·6	21·0	12·0	3·1	134	81	23·7
	12—12·9	21·8	17·0	20·8	14·0	114	65	19·7
	13—13·9	10·5	13·2	24·0	9·4	55	51	11·7
	14—14·9	4·8	7·6	18·9	18·8	25	29	5·9
	15 & above	3·4	5·2	15·6	51·6	18	20	4·2

TABLE VI—(*concld.*)

SPREAD OF VALUES FOR VARIOUS CHEMICAL CONSTITUENTS IN INDIAN TEA

Chemical constituents.	Range of values	South Indian Tea	North Indian Tea	Green Tea	Stalky Tea	*S. India Black Tea	*N. Indian Black Tea Number of samples.	% of samples of *N. *S. combined Black Tea
	No· of samples analysed.	524	392	58	64	Number of samples.		
1	2	3	4	5	6	7	8	9
Water Soluble ash ..	40—44·9	1·3	1·6	8·6	—	7	6	1·4
	45—49·9	6·7	5·2	6·9	4·7	35	20	6·1
	50 & above	92·0	93·2	84·5	95·3	482	358	92·5
Alkalinity as K_2 0/100 gms.	1·0— 1·29	0·6	1·8	47·5	—	3	7	1·1
	1·3— 2·0	91·2	90·7	48·3	48·4	478	348	91·0
	above 2·0	8·2	7·5	5·2	51·6	43	29	7·9
Acid insoluble ash ..	above 1·01	6·3	6·8	5·2	1·6	33	26	6·5
	Below 1·01	93·7	93·2	94·8	98·4	491	358	93·5

TABLE VII—*Chemical Composition of Green Tea*

Year 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. x 6·25	Caffeine % Caffeine N. x 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM																		
3	SOUMEE	6·58	5·81	67·31	32·69	38·20	1·79	0·38	4·10	1·23	21·31	2·44	1·61	11·78	21·67	1·93	2·51	36·34
4	I.H.	6·56	5·42	55·38	44·62	28·36	1·34	0·33	4·35	1·26	22·61	2·50	1·54	14·09	23·09	1·25	2·83	37·36
5	I.H.A.	7·07	5·56	56·58	43·42	31·48	1·48	0·32	4·45	1·22	23·20	2·56	1·79	14·36	15·46	1·44	2·90	36·16
6	F.Y.H.A.	8·12	6·47	47·16	52·54	29·40	1·39	0·47	4·28	1·24	20·45	2·61	0·71	13·07	25·30	2·72	6·12	36·24
7	Y.H.	6·86	5·55	54·47	45·53	30·82	1·45	1·22	4·51	1·22	21·36	3·14	1·02	14·64	18·25	1·34	2·42	38·97
BIHAR																		
1*	SOUMEE	5·49	5·39	45·26	54·74	26·33	1·24	0·41	4·23	1·55	21·00	3·09	2·38	13·42	16·40	1·06	3·18	42·76
6*	SOUMEE	8·88	6·02	53·20	46·80	25·65	1·21	0·60	5·13	1·54	26·31	3·19	2·29	13·50	14·27	2·13	4·12	44·10
27*	SOUMEE	6·50	5·77	50·56	49·44	27·81	1·31	0·48	4·49	1·62	23·00	2·82	2·37	16·23	14·86	0·50	0·84	39·89
2*	I.H.A.	5·62	5·59	44·07	55·93	25·34	1·19	0·35	4·14	1·57	20·63	2·92	2·52	14·61	16·00	0·93	2·91	40·70
7*	No.I.H.A.	8·10	5·80	56·28	43·72	25·43	1·20	0·45	4·85	1·48	26·11	2·52	2·71	9·79	14·13	2·18	3·81	40.37
26*	No.I.H.A.	6·13	5·63	53·83	46·17	26·63	1·25	0·43	4·41	1·59	22·69	2·73	2·26	17·65	14·17	0·33	0·67	36·12
3*	F.Y.H.	4·84	5·58	48·95	51·05	26·14	1·23	0·20	4·21	1·58	20·44	3·24	1·59	13·12	16·81	1·05	2·89	43·65
8*	F.Y.H.	8·50	5·77	60·04	39·96	26·74	1·26	0·63	5·05	1·46	27·16	2·67	1·54	13·64	14·20	1·91	3·29	45·96
25*	F.Y.H.	6·62	5·65	55·07	44·93	25·17	1·18	0·53	4·42	1·57	22·06	3·09	1·52	15·70	11·42	0·34	0·67	37·49
4*	Y.H.	5·42	5·64	42·84	57·16	27·32	1·28	0·50	4·28	1·57	20·69	3·37	1·70	12·94	17·02	0·79	2·91	44·72
9*	Y.H.	8·08	5·75	55·76	44·24	25·41	1·19	0·49	5·24	1·50	28·23	2·71	1·92	14·85	14·72	2·18	3·54	43·68
24*	Y.H.	5·99	5·72	53·75	46·25	26·48	1·25	0·40	4·11	1·50	20·56	2·85	1·55	15·36	13·12	0·50	0·83	38·57
5*	DUST	5·08	5·90	43·42	56·58	24·21	1·14	0·96	4·31	1·54	21·38	3·07	2·35	13·63	18·75	0·79	2·63	44·78
10*	DUST	8·51	6·10	53·62	46·38	26·14	1·23	0·81	5·04	1·51	26·42	2·78	1·68	14·58	13·70	2·05	3·83	40·50
28*	DUST	6·59	5·88	52·87	47·13	26·23	1·23	0·63	4·64	1·64	23·81	2·90	1·86	16·31	13·88	0·34	0·67	39·89

* 1956 Crop

TABLE VII—*Chemical Composition of Green Tea—(contd.)*

Year 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DARJEELING																		
16*	SOUMEE	6·34	5·20	53·95	46·05	25·63	1·20	0·36	5·88	2·14	30·44	3·51	1·34	10·85	14·23	0·64	2·88	43·13
23*	SOUMEE	7·36	6·51	41·79	58·21	24·29	1·14	1·38	4·91	1·68	24·81	3·27	1·77	12·70	13·68	0·34	0·68	39·73
32	SOUMEE MIHI	5·43	4·67	57·25	42·75	46·65	2·20	0·07	5·24	1·99	27·64	3·48	1·63	11·03	22·53	2·97	5·28	39·10
33	SOUMEE MOTA	5·63	4·28	62·74	47·26	61·89	2·92	0·18	5·14	1·78	26·49	2·82	1·95	11·73	23·20	1·99	4·64	37·00
14*	F.Y.H.	6·28	5·08	55·57	44·43	24·35	1·15	0·20	5·41	1·90	27·94	3·27	0·80	12·94	13·87	1·07	2·45	43·48
21*	F.Y.H.	7·50	5·51	52·61	47·39	28·11	1·32	0·17	4·68	1·66	23·56	3·16	1·36	13·93	14·78	0·51	0·85	41·25
26	F.Y.H. 1	6·05	5·27	62·44	37·56	37·26	1·76	0·01	4·93	1·83	24·93	3·26	1·20	13·44	22·36	2·66	4·65	35·60
27	F.Y.H. 2	6·12	5·10	59·36	40·64	41·07	1·93	0·02	4·75	1·92	24·03	3·15	0·99	16·32	22·71	2·99	5·32	36·10
15*	F.Y.H. II	6·11	4·88	54·54	45·46	24·29	1·14	0·39	5·39	1·94	27·31	3·52	1·09	11·53	15·26	0·96	2·24	42·50
22*	F.Y.H. II	7·16	5·36	53·30	46·70	24·24	1·15	0·41	5·21	1·81	26·44	3·38	1·11	12·25	14·88	0·34	0·51	40·94
29	HYSON	6·28	4·21	56·57	43·43	44·89	2·11	0·17	5·50	2·03	28·18	3·42	0·97	12·90	22·73	2·66	4·67	36·80
19*	HYSON	5·96	4·58	52·08	47·92	26·05	1·22	0·41	5·14	1·73	27·13	2·77	1·25	12·71	13·29	0·69	2·66	41·26
28	Y.H.	5·95	4·49	64·57	35·43	35·05	1·65	0·02	4·98	1·96	25·37	3·18	1·89	14·77	17·79	2·32	3·97	36·70
13*	Y.H.	6·44	5·32	51·23	41·77	26·67	1·15	0·31	5·23	1·92	27·19	3·06	0·86	13·68	13·18	1·02	2·99	44·35
20*	Y.H.	6·16	5·19	58·67	41·33	28·23	1·33	0·23	5·06	1·84	26·50	2·84	1·06	13·45	12·96	0·64	2·03	43·16
30	GUN POWDER	7·84	4·32	56·61	43·39	40·69	1·92	0·10	6·05	1·91	31·99	3·23	1·20	13·32	23·49	1·35	3·37	38·20
31	TWANKY	5·57	4·16	58·55	41·45	38·90	1·83	0·11	4·94	1·74	25·33	3·06	1·91	10·62	23·61	2·31	5·96	36·40
34	Y. LEAF	5·72	4·39	56·83	43·17	40·67	1·92	0·15	5·45	1·70	27·89	3·12	1·81	14·09	21·88	2·98	3·31	33·70
17*	BULK GREEN TEA	6·19	4·95	56·30	43·70	23·99	1·13	0·34	5·99	2·29	31·44	3·33	1·63	11·90	13·82	0·80	2·95	42·22
45	PICKED BULK	7·04	5·92	56·93	43·07	32·62	1·54	0·72	4·99	1·40	25·71	2·74	1·20	12·91	20·12	1·85	4·39	36·47
46	UNPICKED BULK	7·27	5·80	62·82	37·18	30·77	1·45	0·57	5·18	1·12	27·34	2·73	1·49	14·03	16·88	1·83	3·71	36·34
35	DUST	5·55	4·43	42·49	57·51	27·51	1·30	1·47	5·21	1·93	25·21	3·34	1·91	11·08	23·86	2·33	4·03	35·60

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TABLE VII—*Chemical Composition of Green Tea—(Concluded.)*

Year 1956-1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DOOARS																		
18*	GREEN TEA	5·45	4·89	56·97	43·03	25·39	1·19	0·45	5·44	1·96	28·19	3·22	1·48	12·74	13·22	0·74	2·96	40·72
11*	BULK GREEN TEA	5·76	5·04	48·69	51·31	26·53	1·25	0·22	5·22	1·59	27·25	2·99	1·70	13·35	10·25	0·70	2·55	41·75
12*	BULK	6·26	4·28	52·77	47·23	23·19	1·09	0·20	5·28	2·18	27·50	3·06	1·36	12·04	11·73	1·03	2·56	39·79
TRIPURA																		
41	SOUMEE I	7·54	5·99	58·65	41·35	33·14	1·56	0·69	5·91	1·95	30·38	3·40	1·04	11·33	21·69	1·69	5·41	43·74
42	SOUMEE II	7·80	6·75	57·03	42·99	31·84	1·50	0·98	4·99	1·26	25·46	3·18	1·49	9·74	23·24	1·53	4·75	40·79
39	HYSON I	7·40	5·25	60·05	39·95	32·58	1·53	0·25	4·90	1·60	24·99	3·13	1·38	12·35	16·89	1·68	4·73	38·02
36	F.Y.H. I	7·85	5·46	57·61	42·39	33·15	1·56	0·29	4·87	1·61	24·53	3·26	1·00	14·35	17·16	2·30	4·46	45·29
37	F.Y.H. II	7·58	5·38	61·25	38·75	33·16	1·56	0·19	4·85	1·75	24·43	3·67	0·93	12·32	17·66	3·39	4·47	41·11
38	F.Y.H. III	7·77	5·40	60·64	39·36	31·65	1·49	0·21	3·69	1·72	22·90	3·16	1·30	13·37	18·81	1·69	4·75	39·20
40	GUNPOWDER	7·53	5·31	59·69	40·31	31·56	1·49	0·34	5·38	1·70	27·12	3·13	1·70	10·47	19·12	1·91	3·72	41·26
43	STALKY TEA	7·68	7·18	57·06	42·94	35·73	1·68	0·07	5·20	1·52	27·48	2·80	1·16	17·30	21·68	1·86	4·40	39·91
44	PICKED BULK	7·91	6·20	58·69	41·31	36·99	1·74	0·41	5·32	1·62	27·62	3·13	0·96	13·09	22·16	2·04	4·76	37·68
JALPAIGURI																		
8	Y.H.	6·84	4·97	52·14	47·86	31·85	1·50	0·24	4·53	1·57	22·60	8·12	1·34	14·90	15·36	1·34	2·42	38·59
9	Y.H.	6·13	5·45	52·64	47·36	33·44	1·58	0·53	5·15	1·50	26·32	3·14	0·97	17·04	17·04	1·20	2·26	42·98
10	Y.H.	6·82	5·35	50·72	49·28	30·28	1·43	0·58	5·15	1·43	26·42	3·15	1·00	17·41	15·88	0·93	2·15	40·62
CALCUTTA																		
1	PICKED BULK	7·12	5·47	54·19	45·81	30·68	1·45	0·32	6·83	1·78	36·66	3·33	0·97	12·63	22·00	0·90	2·71	42·21
Maximum, Minimum and Average Values for all Green Tea																		
Maximum ..	..		7·18	67·31	57·51	61·89	2·92	1·47	6·83	2·01	36·66	3·67	2·71	17·65	25·30	3·39	6·13	45·96
Minimum ..	..		4·16	41·79	32·69	23·19	1·14	0·02	3·69	1·12	20·44	2·44	0·71	9·74	10·25	0·33	0·51	33·70
Average ..	..		5·39	54·91	45·09	30·76	1·45	0·42	4·96	1·66	25·55	3·06	1·50	13·46	17·45	1·48	3·19	40·05

TABLE VIII—*Chemical Composition of Stalky Tea*

Year 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
7	B.P.S.	8·35	6·66	62·87	37·13	36·70	1·86	0·63	4·59	1·86	21·81	3·81	1·23	12·26	11·27	1·09	2·46	35·85
53	B.P.S.	7·47	6·72	61·06	38·94	47·14	2·22	0·48	4·46	1·75	22·38	3·29	1·19	14·01	10·69	1·49	2·43	40·16
57	B.P.S.	6·86	6·88	63·20	36·80	50·47	2·37	0·32	3·84	1·55	19·06	2·94	1·45	15·26	10·98	1·48	2·42	40·50
61	B.P.S.	6·79	6·84	76·90	23·10	46·14	2·17	0·07	3·65	1·59	17·87	2·92	1·22	14·59	10·97	0·94	2·95	40·43
4	PEKOE	8·28	7·00	70·56	29·44	44·82	2·11	0·07	4·29	2·03	20·30	3·61	1·07	15·88	12·36	0·82	3·00	39·13
11	PEKOE	7·13	6·85	64·63	35·37	43·08	2·03	0·05	4·85	2·33	24·13	3·43	0·87	18·65	11·08	1·21	2·69	41·83
18	PEKOE	7·43	6·32	69·38	30·62	43·49	2·05	0·18	4·23	2·05	20·18	3·47	0·93	15·90	8·62	1·89	2·43	40·51
26	PEKOE	7·22	6·45	66·09	33·91	44·19	2·08	0·18	4·25	2·07	18·93	3·36	1·21	17·38	10·42	2·43	3·24	36·64
50	NOT SPECIFIED	8·29	6·53	61·39	38·61	43·62	2·05	0·51	3·39	1·75	15·69	3·04	0·74	19·74	10·01	0·51	1·02	42·96
13		8·07	5·61	66·53	33·47	39·16	1·85	0·23	4·74	2·39	23·00	3·67	1·52	14·64	11·60	1·09	2·72	39·74
14		8·08	6·36	64·25	35·75	40·53	1·91	0·20	4·55	2·28	21·88	3·63	1·23	15·71	10·15	1·09	2·31	39·48
15		6·99	5·85	66·49	33·51	36·80	1·74	0·11	4·33	2·15	20·30	3·63	0·85	14·11	11·82	0·94	2·15	43·70
16		7·66	5·81	64·27	35·73	34·66	1·63	0·61	4·66	2·21	22·00	3·95	1·16	12·48	12·63	1·08	2·16	40·99
17		7·03	5·79	69·75	30·25	43·03	2·03	0·14	4·34	2·13	20·56	3·62	0·74	15·32	10·75	1·38	1·61	40·01
25	DUST	7·31	5·91	65·70	34·30	45·32	2·13	0·25	4·86	2·09	23·74	3·68	1·33	12·53	10·42	1·76	2·16	36·94
29	STALKY TEA	7·65	6·52	58·00	42·00	42·24	1·99	0·21	3·44	2·01	15·12	3·55	1·62	22·45	6·30	1·99	3·89	36·95
31	PEKOE DUST (Art)	7·44	6·65	57·16	42·84	39·98	1·88	0·35	3·96	1·75	19·32	3·01	1·61	17·41	8·51	1·69	3·38	36·63
32	DUST (Art)	7·59	6·37	52·58	47·42	37·88	1·78	0·28	4·06	1·65	19·75	3·12	1·89	15·84	7·57	2·87	4·39	37·44
33	RED LEAF	7·64	5·74	45·67	54·33	29·23	1·37	0·65	3·58	1·08	19·19	1·76	2·11	16·30	4·17	3·72	6·09	35·68
34	BLACK STICK	7·77	6·20	50·75	49·25	37·96	1·78	0·38	3·03	1·26	15·69	1·81	2·16	17·90	7·17	3·73	5·42	36·81
35	GREEN TEA STICK	7·56	6·27	61·01	38·99	43·25	2·03	0·47	3·70	1·34	19·89	2·05	1·75	16·35	7·57	2·03	3·72	41·85
36	YELLOW LEAF	6·74	6·23	51·00	49·00	32·32	1·52	0·50	3·86	1·22	20·18	2·19	2·16	15·94	10·13	2·35	4·19	40·26
37	REDLEAF	9·25	5·79	57·33	42·47	41·46	1·94	0·29	2·93	1·18	15·06	1·81	1·47	24·91	6·42	1·21	1·89	30·85
38	BLACK STICK	8·75	6·21	64·97	35·03	47·42	2·28	0·19	3·11	1·24	16·50	1·84	1·12	24·46	5·80	0·69	1·03	32·45
39	GREEN TEA STICK	7·49	6·01	60·61	39·39	45·52	2·18	0·28	3·17	1·19	16·69	1·73	1·56	21·68	8·97	1·35	2·03	35·91
40	GREEN YELLOW	7·54	6·14	56·65	43·35	41·31	1·94	0·41	3·73	1·17	20·84	1·61	2·15	18·33	9·92	0·34	1·18	37·31

TABLE VIII—*Chemical Composition of Stalky Tea—(contd.)*

Year 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3.464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 160 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
41	RED LEAF	9·40	6·30	45·94	54·06	39·18	1·93	0·70	3·90	1·13	20·68	2·04	1·99	15·86	6·82	0·35	1·73	31·70
42	BLACK TEA STICK	9·51	7·16	52·81	47·19	48·05	2·26	0·59	3·29	1·14	17·00	1·96	1·03	23·47	6·05	0·52	0·69	28·35
43	GREEN TEA STICK	8·18	6·00	68·53	31·47	47·39	2·23	0·12	3·67	1·37	19·44	1·94	1·06	22·76	8·84	0·34	0·68	36·92
44	YELLOW LEAF	8·24	6·23	57·05	42·95	38·77	1·78	0·21	3·72	1·04	19·69	1·99	2·32	17·86	11·15	0·51	1·02	35·20
45	RED LEAF	9·66	7·27	56·75	43·25	45·93	2·16	0·14	3·39	1·10	17·31	2·13	2·47	20·82	7·23	0·52	1·21	27·68
46	BLACK TEA STICK	8·97	7·34	61·05	38·95	46·10	2·17	0·19	8·25	1·10	16·75	1·99	1·33	22·57	6·40	0·27	0·69	28·35
47	GREEN TEA STICK	8·84	6·40	63·09	36·91	44·43	2·09	0·45	3·19	1·12	16·31	2·00	2·46	21·28	11·23	0·51	0·69	41·59
48	BLACK TEA STICK	8·04	9·35	57·39	42·61	46·99	2·21	0·84	2·69	1·13	13·06	2·07	1·24	23·27	5·65	0·35	0·69	32·99
49	GREEN TEA STICK	8·61	7·24	64·60	35·40	43·77	2·06	0·37	3·21	1·37	16·56	1·95	1·16	21·64	9·76	0·35	0·69	39·39
2	—	8·39	6·16	65·11	34·89	35·76	1·68	0·23	4·78	2·07	22·28	4·21	0·99	12·10	16·04	0·68	2·46	39·77
3	—	8·30	7·16	65·32	34·68	41·74	1·96	0·22	4·43	2·06	20·77	3·83	1·13	16·51	14·19	1·09	2·73	38·66
6	—	8·22	6·73	61·06	38·94	36·40	1·94	0·20	4·52	1·94	21·79	3·72	1·09	13·22	12·42	0·95	2·45	37·03
10	—	7·16	6·72	68·03	31·97	44·71	2·11	0·33	4·82	2·66	23·69	3·57	0·93	17·22	12·21	1·35	2·69	42·89
19	—	7·46	6·28	68·69	31·31	42·69	2·02	0·12	4·31	2·08	20·68	3·46	1·39	16·25	9·37	2·03	2·70	39·12
21	—	6·94	5·89	68·95	31·05	42,98	2·02	0·25	4·29	2·11	20·00	3·77	1·35	14·15	11·46	1·75	1·88	42·12
24	—	6·97	6·39	69·55	30·45	44·18	2·24	0·13	4·67	2·24	22·44	3·74	1·26	13·90	11·82	2·02	2·42	37·84
27	—	7·68	6·47	63·73	36·27	40·61	1·91	0·21	4·43	1·67	21·00	3·73	0·91	15·25	7·77	2·37	4·06	40·58
51	—	7·88	6·44	58·40	41·60	41·78	1·96	0·33	4·18	1·72	20·19	3·30	0·55	14·16	9·39	0·68	1·02	42·40
54	—	7·35	6·87	62·26	37·74	49·66	2·33	0·11	4·21	1·71	21·07	3·13	1·30	13·92	11·43	1·62	2·16	39·94
58	—	7·11	7·17	64·57	35·43	50·60	2·38	0·33	3·83	1·74	19·00	2·95	1·26	14·89	10·28	1·48	2·69	42·47
62	—	6·66	6·69	59·16	40·84	49·82	2·35	0·07	3·78	1·63	18·88	2·84	1·25	14·24	11·75	1·47	3·21	41·03
8	B.O.P.	7·86	6·65	61·64	38·36	36·81	1·80	0·16	4·55	1·80	21·74	3·71	1·12	13·10	11·60	0·95	1·90	36·53
55	B.O.P.	7·06	6·83	62·99	37·01	44·12	2·08	0·32	4·33	1·91	21·63	3·24	1·39	14·20	10·64	1·21	2·15	41·63
59	B.O.P.	6·93	6·63	63·21	36·79	46·74	2·20	0·42	4·32	1·76	12·75	3·12	1·39	14·50	9·86	1·21	1·88	41·87

TABLE VIII—*Chemical Composition of Stalky Tea—(concld.)*

Year 1957

Sample No. and Region	Type of manufacture	Moisture %	Total ash %	Water sol. ash in terms of total ash %	Water insol. ash in terms of total ash %	Alkalinity of soluble ash		Acid insol. ash %	Total N %	% of N in water extract	Crude protein % Non caffeine N. × 6·25	Caffeine % Caffeine N. × 3·464	Pet. ether extract %	Crude fibre %	Tannins %	Sugars %		Total sol. solids %
						in cc. of N. HCl per 100 g.	in g. of K_2O per 100 g.									Before inversion.	After inversion.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
63	B.O.P.	6·44	6·66	59·95	40·05	42·22	1·99	0·17	4·20	1·67	21·37	2·88	1·14	14·35	9·81	1·47	2·94	40·84
1	—	8·51	5·72	67·46	32·54	32·98	1·55	0·60	5·20	2·19	24·56	4·40	1·37	11·44	16·52	0·84	2·19	37·71
5	—	8·23	6·51	62·31	37·69	35·50	1·66	0·22	4·92	2·09	23·03	4·28	1·07	10·10	13·27	0·68	2·18	39·67
9	—	8·37	6·47	61·13	38·87	37·00	1·96	0·10	4·74	1·96	22·55	3·92	1·08	12·71	12·04	1·25	1·91	36·40
12	—	7·07	5·66	62·25	37·75	34·17	1·61	0·28	5·23	2·91	23·00	4·36	1·55	10·02	12·20	1·08	2·42	41·49
20	—	7·24	6·19	64·16	30·84	40·69	1·92	0·29	4·67	2·00	22·39	3·76	1·52	12·12	8·98	1·89	2·16	39·99
22	—	7·25	5·69	65·57	34·43	39·58	1·86	0·11	4·69	2·26	22·56	3·74	1·31	12·88	12·22	1·76	2·16	39·82
23	—	6·98	6·54	66·25	33·75	47·56	2·24	0·10	4·50	2·19	21·37	3·75	1·08	14·71	11·82	2·02	2·74	38·96
28	—	8·60	6·01	56·50	43·50	32·84	1·54	0·44	5·05	2·23	24·25	4·41	1·46	12·47	9·76	2·74	3·59	40·54
30	—	7·89	6·17	56·83	43·17	38·00	1·79	0·47	4·68	1·87	22·88	3·54	1·63	15·01	8·55	2·38	2·88	38·58
52	—	7·71	7·00	47·26	52·74	38·48	1·81	1·05	4·01	1·56	19·56	3·29	2·11	11·42	11·09	1·35	2·44	40·70
56	—	7·02	6·47	59·97	40·03	46·25	2·18	0·55	4·40	1·94	21·69	3·45	1·33	12·39	10·87	1·07	1·88	40·25
60	—	7·11	6·71	59·31	40·69	43·61	2·05	0·24	4·48	1·74	22·75	3·13	1·27	13·58	10·26	1·21	2·42	38·51
64	—	6·56	6·68	56·13	43·87	48·70	2·29	0·26	4·29	1·65	21·75	3·00	1·67	13·09	10·94	1·20	2·14	40·24
Maximum, Minimum and Average Values for all Stalky Tea																		
Maximum			8·04	76·90	54·33	50·60	2·38	1·05	5·23	2·91	24·56	4·50	2·47	24·91	16·52	3·73	6·09	43·70
Minimum			5·61	45·67	23·10	29·23	1·37	0·05	2·69	1·04	15·06	1·61	0·74	10·02	4·17	0·34	0·68	27·68
Average (64 Samples) ..			6·46	61·62	38·38	41·95	2·00	0·31	4·13	1·77	20·85	3·11	1·38	15·99	10·12	1·36	2·41	38·45

— Grade unclassified.

APPENDIX I

LIST OF TEA ESTATES IN NORTH INDIA AND THE NUMBER OF SAMPLES RECEIVED FOR ANALYSIS

Sl. No.	Region	Name of the Estate	Type of manufacture	April-May 1956-1957		August 1956-1957		Nov.-Dec. 1956-1957	
1		Balijan	CTC	—	4	—	4	—	4
2		Jamirah	C	—	5	—	5	—	—
3		Kanu	C	—	4	—	4	—	4
4		Melong	C	—	5	—	5	—	5
5		Diffloo	C	—	5	—	5	—	5
6	ASSAM	Salonah	C	—	5	—	5	—	5
7		Dhulapadung	CTC	—	5	—	5	—	5
8		Tinkharia	C	—	5	—	5	—	5
9		Cinnamara		4	—	5	—	4	—
10		Jaijuri		—	—	5	—	6	—
11		Borjuli		—	—	8	—	8	—
12		Larsingh	C	—	3	—	3	—	3
13		Dholai	Leggcut	—	4	—	2	—	4
14	CACHAR	Koomber		3	—	3	—	6	—
15		Borokai		4	—	—	—	8	—
16		Longai		5	—	—	—	—	—
17		Rydak	C	—	4	—	5	—	5
18		Hassimarah	C	—	—	—	—	—	1
19		Kalchini	C	—	5	—	5	—	5
20		Lakhipara	Leggcut	—	3	—	3	—	3
21		Chengmari	Leggcut	—	5	—	5	—	5
22	DOOARS	Leesh River	Leggcut	—	4	—	5	—	5
23		Banarhat	C	—	4	—	4	—	4
24		Ramjhora		—	3	—	4	—	4
25		Ghatia		3	—	3	—	3	—
26		Baradighi		5	—	5	—	5	—
27		Central Dooars		5	—	6	—	10	—
28		Kadambini		—	—	—	8	—	—
29	TERAI	Tirrihannah	C	—	4	—	4	—	4
30		Namring	C	—	4	—	4	—	4
31	DARJEELING	Selimbong	C	—	—	—	5	—	—
32		Tukvar	C	—	—	—	5	—	5
33		Poobong		4	—	—	—	8	—
		TOTAL ..		33	81	35	100	58	85

APPENDIX II

DATA ON RAINFALL AND TEMPERATURE DURING COLLECTION OF TEST SAMPLES

Region and Easte No·		Type of manufacture	JANUARY				APRIL				JULY—AUGUST				NOVEMBER–DECEMBER			
			Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
ASSAM	1	CTC					66-69	—	—	—	143-146	17·60	H	H	249-252	Nil	L	H
	2	C					41-45	2·69	H	H	108-112	15·53	H	H				
	3	C					14-17	0·75	M	M	155-158	10·88	H	H	230-233	10·88	H	H
	4	C					70-74	—	—	—	128-132	16·32	H	H	239-243	2·37	H	M
	5	C					36-40	33·36	H	H	123-127	6·21	H	H	206-210	1·41	M	M
															244-248	0·86	M	H
	6	C					75-79	19·75	H	H					159-163	8·01	H	H
	7	CTC					46-50	18·69	H	H	113-117	15·67	H	H	221-225	0·71	M	M
	8	C					60-64	—	—	—	92-96	6·75	H	H	183-187	2·69	H	H
	9						*217-220	Nil	M	H	*323-327	5·62	M	M	*522-525	5·14	H	M
	10										*328-333	21·06	H	H	*562-567	0·61	H	H
											230-237	—	—	—				
	11										*488-491	24·73	L	M	*573-576	6·96	M	M
CACHAR	1	C					25-27	31·90	H	M	152-154	15·06	H	H	258-260	Nil	H	H
	2	Leggcut					56-59	—	—	—	136-137	20·78	H	H	197-200	Nil	H	H
	3		*624-628	5·41	L	L	*174-176	—	—	—	*358-360	30·64	L	L	*534-536	*8·50	M	M
	4						*208-211	5·50	H	L	*390-393	—			*577-580	51·00	M	M
	5						*202-207	13·18	H	M								

APPENDIX II—(*contd.*)

DATA ON RAINFALL AND TEMPERATURE DURING COLLECTION OF TEST SAMPLES

Region and Easte No.		Type of manufacture	JANUARY				APRIL				JULY—AUGUST				NOVEMBER-DECEMBER			
			Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.	Sample Numbers	Rainfall (in.)	Day temp.	Night temp.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
DOOARS	1	C					32-35	3·46	H	H	147-151	65·85	H	H	211-215	·36	H	H
	2	C													216	—	—	—
	3	C					51-55	—	—	—	138-142	46·57	H	H	234-238	8·42	H	H
	4	Leggcut					22-24	3·46	H	H	133-135	19·88	H	H	261-263	3·86	M	M
	5	Leggcut					1-5	1·45	H	M	82-87	49·41	H	H	201-205	0·45	M	H
	6	Leggcut					28-31	Nil	H	H	118-122	27·66	H	H	253-257	Nil	M	H
	7	C					18-21	1·67	H	H	179-182	19·99	H	H	193-196	4·72	H	M
	8						80-82	—	—	—					264-267	—	—	—
	9										171-178	—	—	—				
	10						*122-124	3·04	M	H	*312-314	49·74	H	H	*505-507	15·56	H	H
	11						*192-196	2·86	M	M	*353-357	40·82	L	L	*403-407	22·08	M	M
	12										*225-229	—	—	—				
							*187-191	5·70	M	M	*408-412	—	—	—	*568-572	1·16	M	M
TERAI	1	C					6-9	0·32	H	M	88-91	75·90	H	H	226-229	0·43	M	M
Darjeeling	1	C					10-13	—	—	—	104-107	25·03	H	H	217-220	Nil	M	H
	2	C									99-103	16·81	H	H				
	3	C									163-165	30·27	M	H	167-168	12·28	M	H
	4														188-192	0·20	L	L
							221-224*	—	—	—	394-397*	—	—	—	542-545	19·11	M	M

Temperature :— H—Day Above 85°F Night : Above 65°F
M—Day 65F°—85°F Night : 55°F—65°F
L—Day < 65°F Night : < 55°F

* year 1956.

Fig. I. SPREAD OF ALKALINITY OF SOLUBLE ASH IN TEA SAMPLES

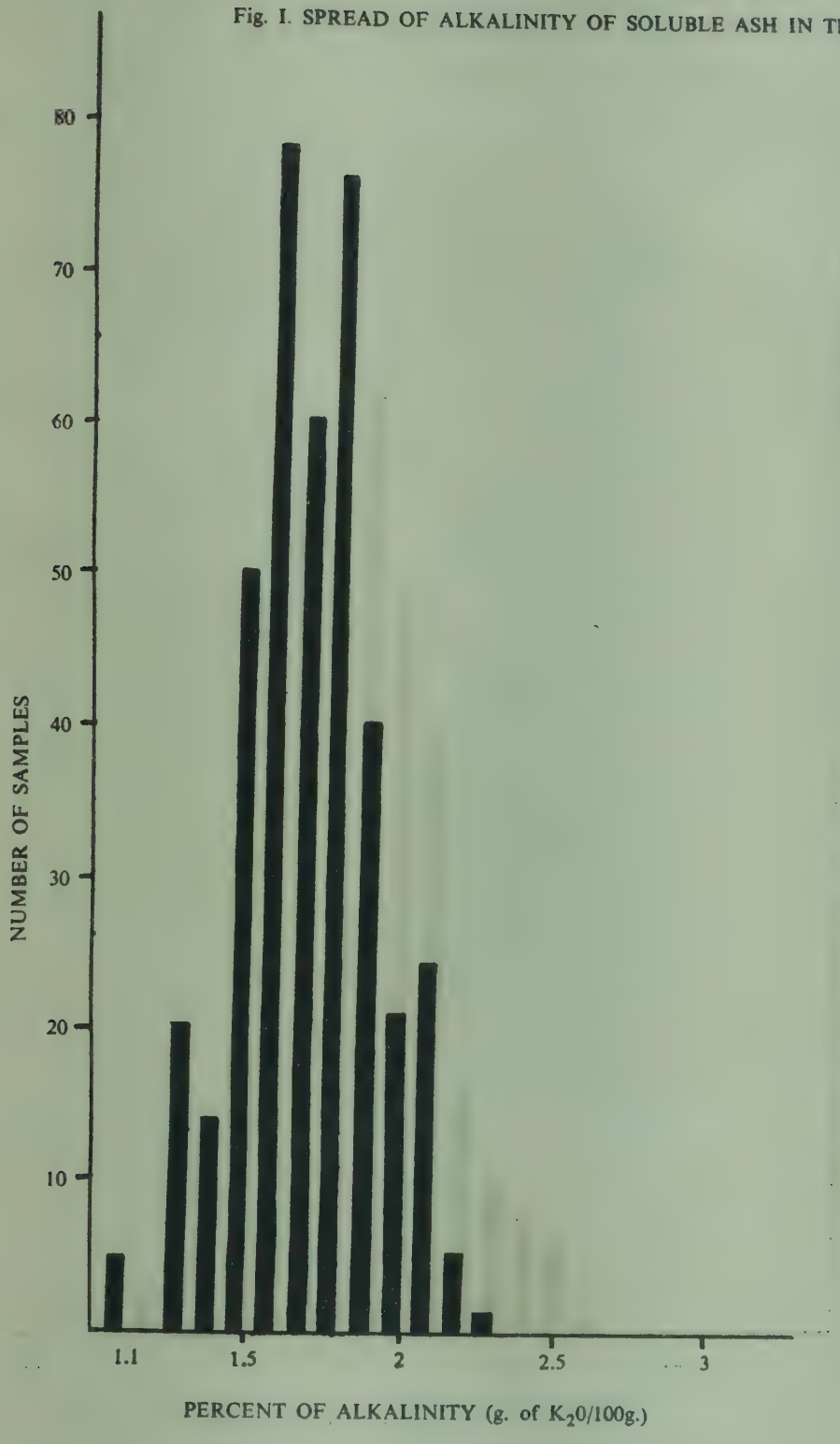


Fig. II SPREAD OF TOTAL SOLUBLE SOLIDS IN TEA SAMPLES

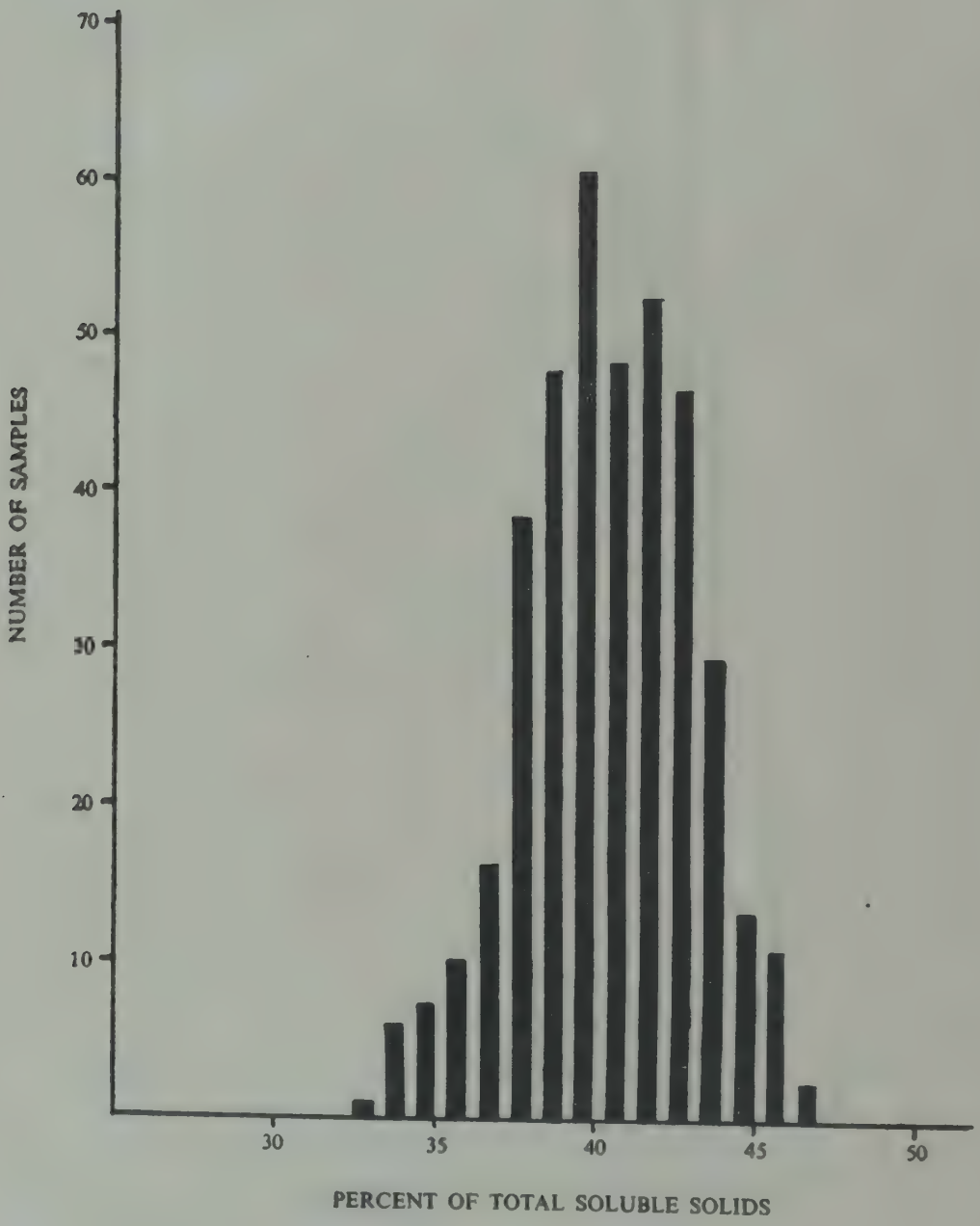


Fig. III. SPREAD OF CRUDE FIBRE IN TEA SAMPLES

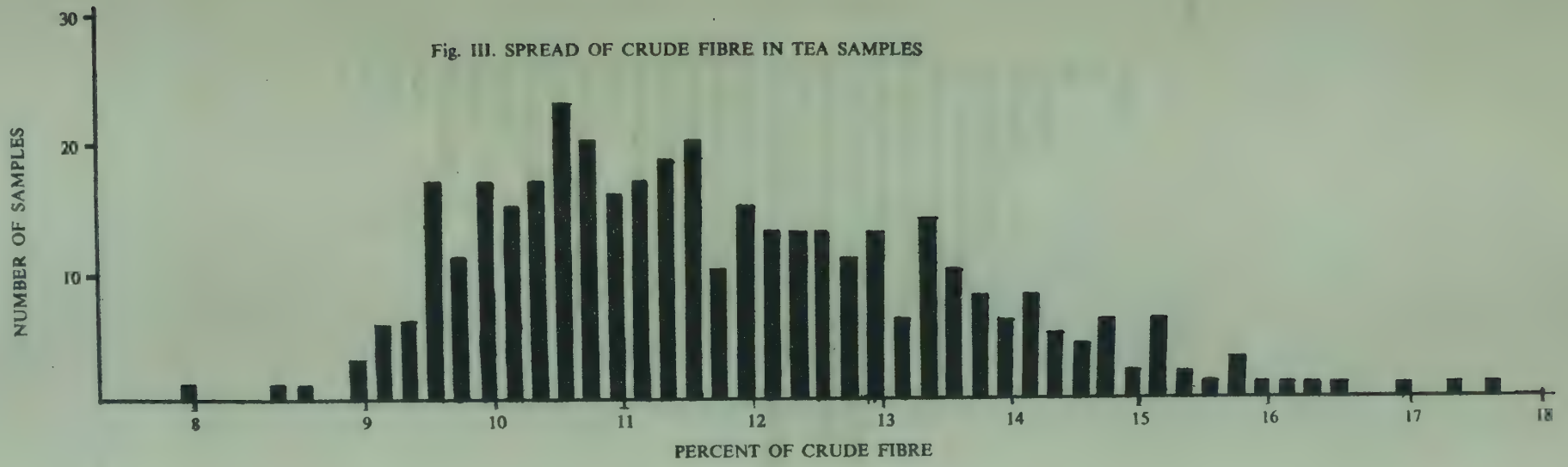


Fig VI. SPREAD OF TANNINS IN TEA SAMPLES

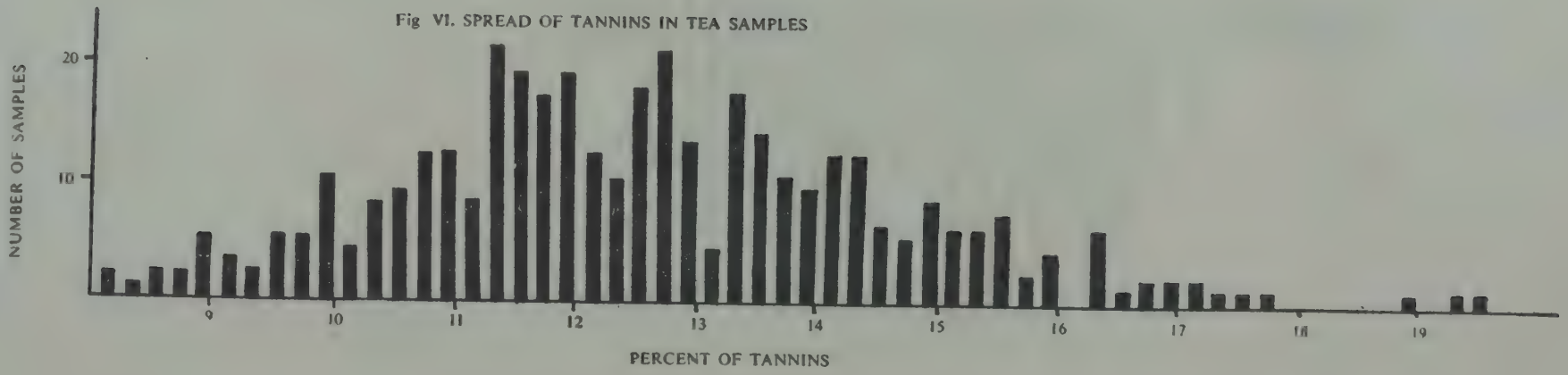
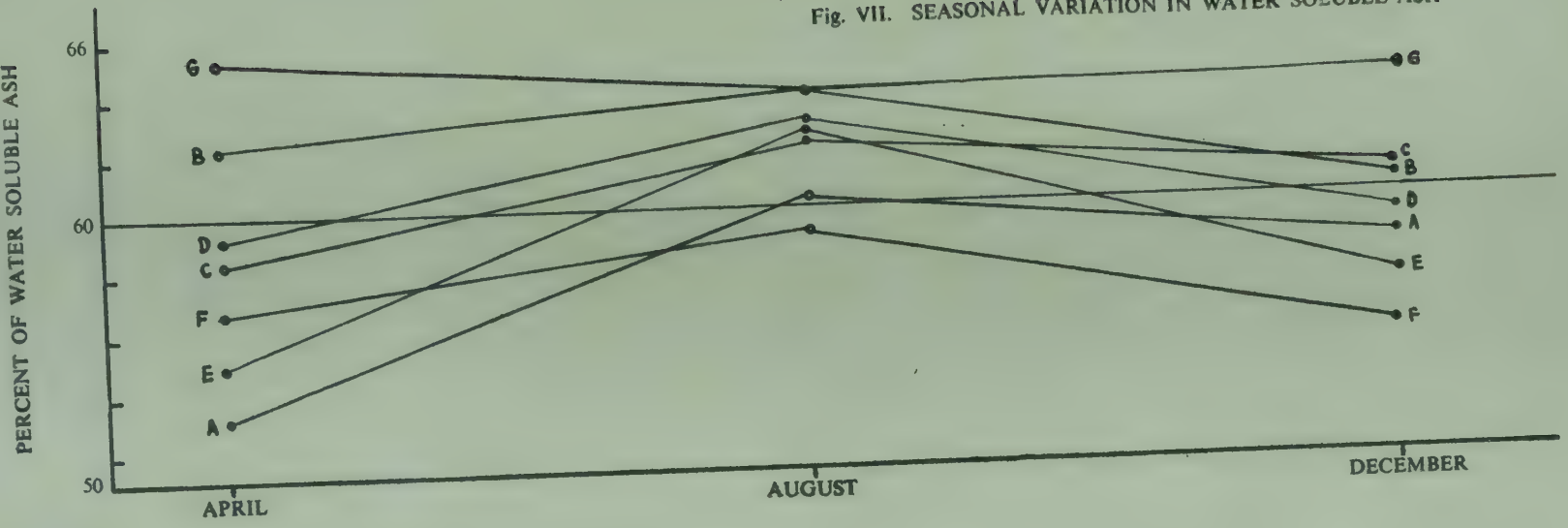


Fig. VII. SEASONAL VARIATION IN WATER SOLUBLE ASH



A. Large Pekoe
B. Small Pekoe
C. B. O. P.
D. Fannings
E. Dust I.
F. Dust II.
G. Broken Tea

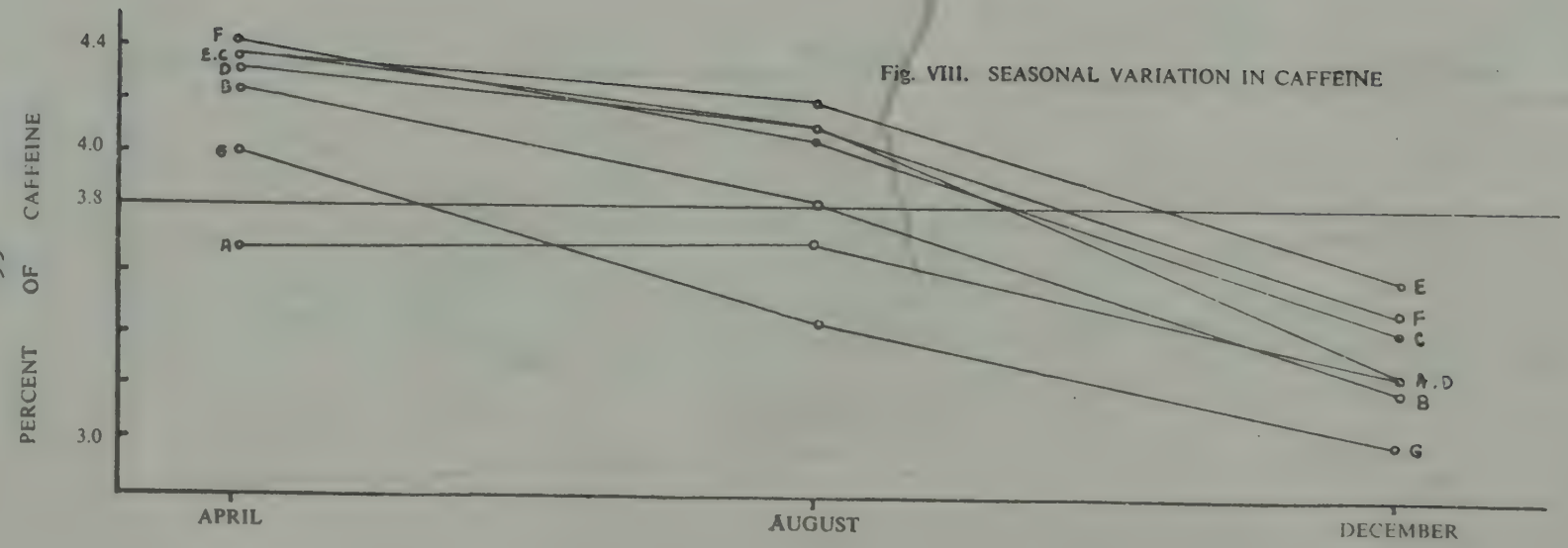


Fig. VIII. SEASONAL VARIATION IN CAFFEINE

A. Large Pekoe
B. Small Pekoe
C. B. O. P.
D. Fannings
E. Dust I.
F. Dust II.
G. Broken Tea

25/4/97

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